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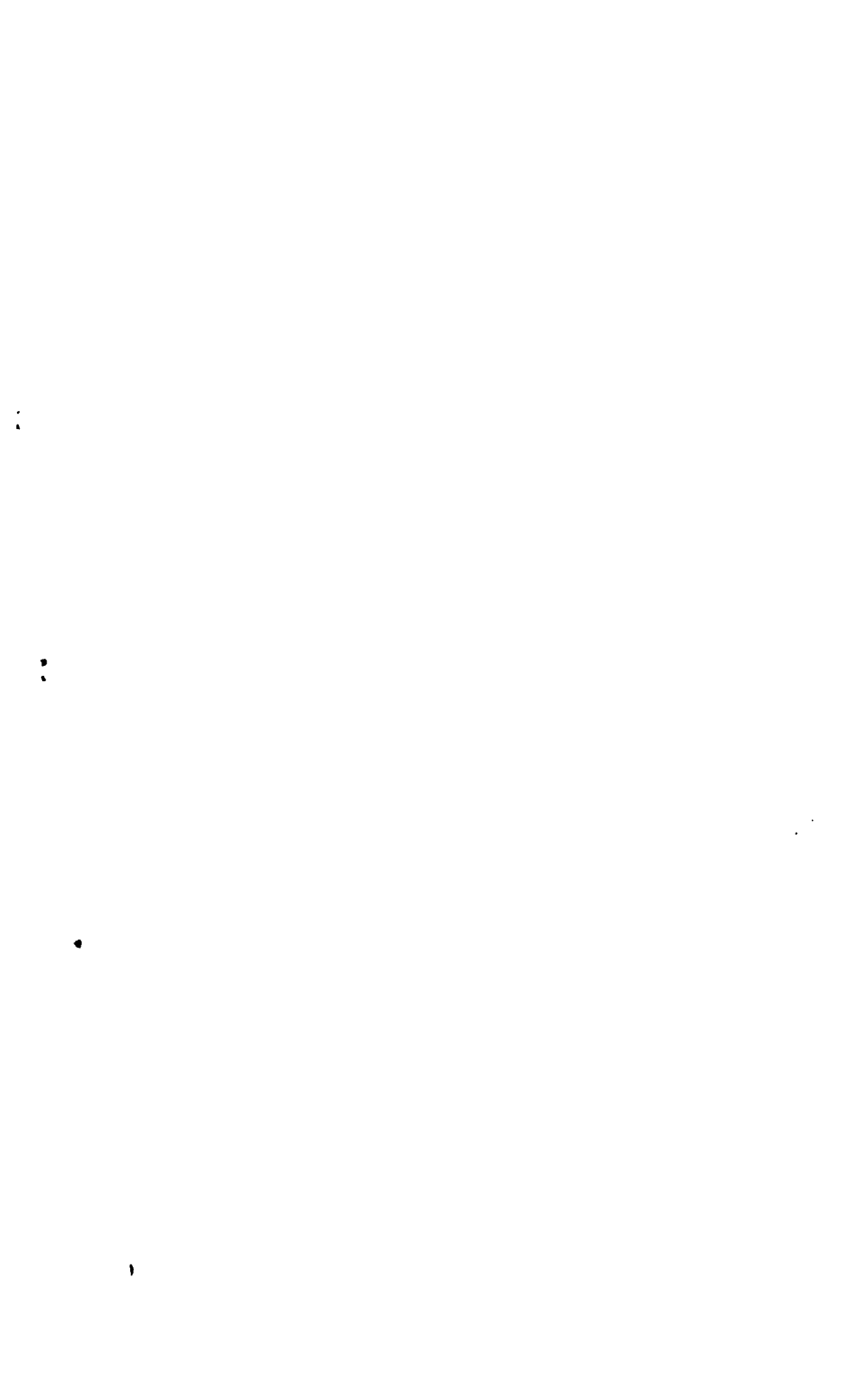
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OF
MEDICAL SCIENCE.

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MEDICAL OBSERVATION
EDITED BY
JOHN WILLIAM MOORE, B.A., M.D., M.Ch., UNIV. DUBL.;
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In future no papers will be inserted as "Original Contributions" except on the distinct understanding that they are sent for publication to this Journal alone, and that only abstracts of them (with due acknowledgment) shall afterwards appear elsewhere.

Authors of "Original Communications" will please consider themselves bound in honour to a strict observance of this understanding.

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THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

JANUARY 1, 1889.

ORIGINAL COMMUNICATIONS.

ART. I.—*Case of Pulsating Tumour of Bone.** By ROBERT M'DONNELL, M.D., F.R.S.; Surgeon to Steevens' Hospital.

THERE are few subjects in Surgery, says Dr. Richet, the distinguished surgeon of La Pitié, in the opening sentence of his classical memoir on the subject, on which there is less agreement than on the tumours described under the names—aneurysm of bone, fungating tumours of bone, or pulsating or erectile tumours of the osseous tissue. This he attributes to several causes—first, the rarity of the affection, then the small number of published observations, but chiefly to the difficulty, almost the impossibility, of assigning their true value to clinical symptoms, so that pathological anatomy has been called on single-handed to decide the question. He then adds: “The deductions drawn from clinical observation, a little too much neglected in the present day, have in my eyes a great importance, although in a somewhat different direction from those derived solely from anatomical examination.”

The case which I am about to detail owes its value entirely to its clinical history, progress, and termination. My experience of similar cases accompanied with pulsation led me to believe that it was a malignant affection, and I do not hesitate to say that I at one time thought that the only hope of saving the patient's life lay in amputation. Pulsation, however, is a symptom common to several distinct forms of tumours connected with bone, and although,

* Read before the Section of Surgery in the Royal Academy of Medicine in Ireland, on Friday, November 9th, 1888. [For the discussion on this paper see the number of the Journal for December, 1888. Vol. LXXXVI., p. 524, No. 204. Third Series.]

in general, when we have to do with a pulsating tumour of bone, we may feel that in all probability it is a case of sarcoma or very vascular carcinoma we have before us, yet a considerable number of recorded cases go to show that this opinion must not be too absolute. Some authors, as Lebert and Rokitsansky, regarded these pulsating tumours of bone as, in fact, malignant tumours thus modified, and some of those present who have enjoyed the privilege of having been pupils of our eminent surgical pathologist, Professor R. W. Smith, will doubtless remember how decidedly in his lectures he inclined to this view ; yet some observations recorded even by the older surgeons—as Scarpa, Pearson, Carnochan, Parisot, Richet, Roux, &c.—left little doubt that there exists a special vascular tumour not essentially malignant, and capable of cure.

Mrs. X., aged thirty-eight years, first came under my observation on the 21st of February, 1885. She brought me a letter from Mr. Erichsen, whom she had consulted a few days before in London. In this letter Mr. Erichsen says—"Mrs. X. has this day (February 18th, 1885) consulted me respecting a swelling in her right leg. I find she has a pulsating tumour, with a loud bruit occupying the middle, outer, and anterior part of the limb. It appears to me to be connected with the fibula rather than the tibia, and the most active pulsation and loudest bruit are about the middle, just opposite that bone. If I were to hazard an opinion as to its nature, I would say that it is a pulsating sarcoma. I have advised Mrs. X. to place herself in your hands, and have told her husband of the gravity of her case."

Mrs. X., thirty-eight years of age, is a healthy-looking, active lady, the mother of three children, and at present nearly four months pregnant. She gives the following account of her case:—Some three years before (in 1882), while attending some meetings in England with her husband, and standing and walking about a good deal, she was suddenly attacked with a severe pain in the right leg, above the outer ankle. This pain was as bad as any toothache she ever felt, and was confined to one spot, on which she could put her finger. She thought a boil or abscess was forming, and remained in bed or in the recumbent posture for some days. In a few days this pain subsided, and since then she has had no acute pain at all. About a year after this she first observed the throbbing or pulsation in the swelling. She suffered little or no pain or inconvenience in walking, and would not of herself have considered it necessary to consult anyone, had

not a friend with whom she was staying in London, and to whom she spoke of the throbbing in her leg, insisted on taking her to see Mr. Erichsen.

The case being one of great interest to me, I made accurate measurements, but regret that I had not a cast taken of it. The tumour, the position of which is indicated in Mr. Erichsen's letter, to my mind certainly was connected with the fibula; it was about the size of an elongated turkey egg, and pulsated as strongly as any popliteal aneurysm I have ever felt. Pressure on the femoral artery put a complete stop to both pulsation and bruit; at the same time the tension of the tumour was lessened, but even under firm pressure it was not much diminished in bulk, increasing again in three or four distinct throbs when all pressure was removed. Although both the pulsation and bruit were most marked at the middle of the swelling, yet both could be perceived at every part of it.

Grasping the limb firmly in both hands, and squeezing the whole circumference for some minutes, caused no pain, and did not very notably diminish the bulk of the mass. The skin was not discoloured; no vessels could be seen ramifying over its surface. No distinct arterial branches could be found. There seemed, at the upper and lower extremity of the fusiform tumour, to be something like a slight ridge or bony projection; but this was obscure, and it is certain that nowhere over the surface could any evidence of a bony shell be found, or any parchment-like crackle.

I frankly confess that I took a gloomy view of Mrs. X.'s case. I looked on it as a pulsating periosteal sarcoma. As the patient was pregnant, not suffering pain, and in a state of good general health, I advised the use of a moderately tight elastic stocking, rest, and observation.

I saw the patient at intervals of about a month, and finding, on careful measurement, little if any increase, I wrote after the lapse of three months to Mr. Erichsen to report progress, saying that it seemed to me that the fact of pregnancy was assisting the pressure in keeping matters in abeyance. In May, 1885, I got the following letter from him:—"Many thanks for your note referring to Mrs. X. It is so far satisfactory to hear that the tumour is not increasing in size or activity, and that she will probably be able to pass through the period of her pregnancy without the need of surgical interference. But I should fear that after her confinement the growth will become more energetic. Anyway, I am quite

in accord with you that for the present nothing should be done. I should be much obliged to you if you would kindly let me know the ultimate issue of the case."

During the months of June and July the tumour somewhat increased in size; the circumference of the leg, measured at the most prominent part of the swelling, was found to be somewhat less than an inch larger than in February—nearly 12 inches. Except for this there was no other appreciable change—pulsations continued as strong over every part of the tumour, the bruit as loud as before, and there was no pain.

On the 20th of August, 1885, Mrs. X. was confined. Mr. Erichsen agreed with me in recommending that she should nurse her baby. This she did, but in November the menses, which had ceased, re-appeared, and it became a question whether she should continue nursing. She communicated with me on this subject on December 15th, 1885. As during all this time there was no change save some increase in the circumference of the tumour, and as Mr. Erichsen and I could not help thinking that at first pregnancy and later lactation had at least assisted in staying the progress of the malady, we still recommended that Mrs. X. should continue to nurse her boy, and she did so.

Some weeks after the birth of the child Mrs. X. had an attack of phlegmasia dolens in the good leg; the other limb, however, was not affected; the œdematous swelling was altogether confined to the left leg. On December 31st, 1885, the baby died. Owing to the attack of phlegmasia dolens, &c., the patient was very much confined to bed, and, in fact, for nearly six months was constantly more or less in the recumbent posture; during this time the elastic stocking was almost constantly worn.

On getting up after this prolonged delicacy Mrs. X. found that all pulsation had ceased, and that the tumour was smaller. As she did not reside in Dublin I had not seen her for some time. Great was my surprise when I next saw her in February, 1886, to find all pulsation gone, and the tumour unmistakably reduced in size.

I could hardly believe it possible that so formidable a disease—for I had regarded it as a pulsating periosteal sarcoma of the fibula—had undergone complete cure. I begged of the patient to let me see her again at intervals, and did not venture to write again to Mr. Erichsen until repeated examinations made me feel more confident that the trouble was not merely dormant. I did not

therefore communicate with him until October, 1886, when I received from him the following reply:—"Mrs. X.'s case is most interesting, and I am greatly obliged to you for your kindness in sending me the details respecting it. The view that I took of the pulsating tumour was that it was a hæmatoid sarcoma, and that it would necessitate amputation. I do not remember ever to have seen a similar case. I have several times seen pulsating sarcomata of bone or the old osteo-sarcomata cease to pulsate, but then the tumour has developed rapidly, and rendered operation necessary. The remarkable, and to me novel feature in Mrs. X.'s case is that, as you express it, 'the tumour is gone.' It will be very interesting to watch the case, and to see if this disappearance of the tumour is permanent; I should fear that it will not prove to be so. One remarkable feature of Mrs. X.'s case was the remarkably loud and shrill character of the bruit. This would of course cease with the pulsations."

Knowing that her case was an unusual one, and seeing the interest I took in it, Mrs. X. continued to let me see her at intervals. Gradually all traces of the tumour disappeared. She visited London in the spring of 1887, and I begged of her not to fail to see Mr. Erichsen. On May 9th, 1887, he wrote to me as follows:—"Mrs. X. called on me this morning; I examined her leg very thoroughly, and could find no trace of tumour, pulsation, or bruit. A most interesting case, and one that I think deserves record. Is it possible that the vessels which were in so active a state when I last saw her had become plugged during the attack of phlegmasia that followed her confinement, or is the cure due to prolonged rest and slight compression?"

At my request Mrs. X. and her husband kindly called at my house on Tuesday last (November 6th, 1888). She is in excellent health, and there is no vestige of tumour, pulsation, or bruit. The circumference of the leg at the part where the pulsating swelling had been most prominent is now $10\frac{1}{2}$ inches ($12\frac{1}{2}$ in August, 1885, shortly before her confinement). It was not found possible to make any useful comparative measurement of the right leg, as this leg still continues considerably enlarged ever since the attack of phlegmasia.

Mrs. X. still wears the elastic stocking. As it is now approaching three years since all pulsation ceased and the tumour began to decline, I think we are justified in hoping that Mrs. X.'s recovery is complete, and will prove permanent.

Pulsating tumours connected with bone are not common, and in such cases, as everyone knows, the prognosis is unfavourable. Such cases as I now record must be rare indeed—where recovery follows prolonged rest, local pressure, and possible plugging of vessels—although it should be remembered that the limb on which the pulsating tumour was situated was not in any way visibly affected by the phlegmasia.

The cases of pulsating tumours of bone which I have myself seen are not numerous. One occurred in a patient of Dr. Hutton, in the Richmond Hospital, when I was his resident pupil. This was on the head of the tibia, and amputation was performed above the knee. Professor Robert W. Smith, at that time Curator of the Pathological Museum of the Richmond Hospital, examined the limb, and pronounced the tumour to be malignant. The patient made a tedious, but ultimately a good recovery. He may be alive still, but I am able to state positively that twenty years after he still survived, and had no return of malignant disease.

The interesting case recorded by Doctor Cruise in the Proceedings of the Pathological Society of Dublin, April, 1866, I also had an opportunity of examining. In this instance the lower end of the femur was implicated, and amputation was resorted to. More than twenty years have now elapsed since this patient lost his limb, and I am glad to say he has had no return as yet. [Drawing and specimen exhibited.]

A case very similar to that published by Mr. Stanley, in his well-known paper in Vol. XXVIII. of the Medico-Chirurgical Transactions, occurred under my observation in the hospital of the Mountjoy Convict Prison, in former years, when I was Medical Superintendent of that institution. The patient was a well-made young man, twenty-five years of age. The tumour presented itself in the right sciatic notch. It caused intense pain along the sciatic nerve and its branches, but was at first so deeply seated beneath the gluteal muscles that no pulsation was distinguished; it grew rapidly, and ultimately filled the right side of the pelvis. It was found to pulsate, but gently and with a purring thrill, not with the "deep, heavy beat" described in Mr. Stanley's case. The *post-mortem* examination in this case proved it to be an osteo-sarcoma of intense malignancy. Bony spicula were found through every part of the enormous mass. All pulsation had ceased for a considerable time before death, which may be accounted for by the fact that the vena cava was found plugged by a large mass which

proved not to be a clot, but a growth containing spicula of bone and identical in microscopic structure with the tumour itself. [Drawing of this growth filling the vena cava presented for inspection.]

In connection with the foregoing, a very interesting and remarkable case, styled "Osteo-aneurysm," and published by Professor Mapother, should be referred to. This case was treated by the application first of potassa fusa, and afterwards by the actual cautery; it was brought under the notice of the parent of this Section of the Academy, "The Surgical Society of Ireland," in January, 1863. I have Professor Mapother's assurance that this patient has had no return of the disease, which was situated near the middle of the left tibia.

In conclusion, to return for a moment to Mrs. X.'s case—it was one of so much moment, as well as of so much interest, that I examined the patient often, and very carefully. If I were now asked—Should you again meet with a similar case, what are the chief points on which you would rely to distinguish it from a pulsating malignant sarcoma? I should say briefly the slowness of growth, the situation—not at the epiphysial end of the bone, but on the shaft—but chiefly the strength of the pulsation and the loudness of the bruit. These last symptoms were unlike the gentle throb and the soft purring bruit which I have observed in the other cases of pulsating tumours of bone with which I have met. The last is a diagnostic symptom which did not escape Mr. Erichsen's acute observation; he observes, in his letter of October, 1886—nearly two years after he had seen the patient, and then only once:—"One remarkable feature of Mrs. X.'s case was the remarkably loud and shrill character of the bruit." This had taken a hold on his memory as something unusual.

ART. II.—*On Cholecystotomy.** By KENDAL FRANKS, M.D., Univ. Dub.; Fellow and Member of Council, Royal College of Surgeons; Vice-President, Univ. Biological Association; Surgeon to the Adelaide Hospital; ex-Scholar, Trin. Coll. Dubl.

ALTHOUGH medical literature during the past nine years has recorded many cases of cholecystotomy, I am not aware of any case having hitherto been reported in Ireland in which the gall-bladder has been opened for the removal of gall-stones, or for the

* Read in the Section of Surgery of the Royal Academy of Medicine in Ireland, on Friday, December 7, 1888. [For the discussion on this paper see page 78.]

relief of obstruction of the ducts. I will therefore ask you to bear with me if I enter somewhat at length into the details of a case which came under my care in the Adelaide Hospital in the autumn of 1887, and in which I performed this operation.

Mrs. C., aged fifty-two, was admitted into hospital on the 18th of August, 1887, under the care of my colleague, Dr. Wallace Beatty. She was then suffering from attacks of fever resembling ague, and from violent attacks of pain, which were attended with jaundice and sometimes vomiting. Her previous history was as follows:—She had lived for years in India, where she was born. She came home in 1865. She had fourteen pregnancies and four miscarriages. Two years before her admission the catamenia had disappeared. During June and July, 1886, she went through a tedious and anxious nursing of seven children in scarlatina. In August of the same year, a son came home from India, and went out of his mind, and in September, another son, aged seventeen, died. To this succession of troubles she attributed much of her subsequent illness. From September to the end of December she felt weak and was troubled with a fulness in the epigastrium after her food, but she had no pain. On the 26th of December, 1886, she was attacked, for the first time, with pain across the upper part of the abdomen, of a severe character, and lasting for several hours. This attack was followed by jaundice. Since then she had had several attacks, all of them attended with jaundice, and occasionally, but not invariably, with vomiting. The course of these attacks was always the same—varying only slightly in some details. First, there was the severe abdominal pain as described, lasting for some hours, which might or might not be accompanied with vomiting. Then jaundice supervened. During the attack aguish symptoms appeared, beginning with shivering, followed by fever, the temperature rising several degrees and terminating in a sweating stage. Great itchiness of the skin was complained of. Between the attacks, the jaundice either diminished or disappeared entirely. Constipation did not precede the attacks.

On her admission into hospital her condition, as noted by Dr. Beatty, was as follows:—She was very thin and deeply jaundiced. The pulse was 57, small and compressible. On examining the abdomen, an abnormal swelling or tumour was found on the right side, descending from the hepatic region and reaching nearly to the crest of the ilium. It was quite solid to the feel, and descended on inspiration. It was readily felt between the hands when one

was placed posteriorly in the loins and the other anteriorly over the right side of the abdomen. It had a well-marked smooth free border on the left side slightly to the right of the linea alba. This tumour seemed to come from below the right costal arch, as the hands could not be sunk above it, between it and the ribs. No upper limit could be felt. She was provisionally ordered one drachm of sulphate of sodium, with 15 grains of bicarbonate of sodium, to be taken in half a tumbler of hot water half an hour before meals, and to get an enema of hot water with a drachm of ox-gall in it.

At 12.30 p.m. that day a very severe attack of pain came on across the upper part of the abdomen, with shivering, followed by feverishness. During the pain the abdomen was again examined, and then a second tumour was discovered, quite distinct from the original one, a little to the right and below the umbilicus. It was small and round, about the size of a small orange, hard and painful, but not tender. As the pain subsided, this tumour became less distinct. That evening the enema brought away a copious motion, with scybala. No gall-stones were detected in it. On the following day, Aug. 19th, at 11 a.m., another attack of pain came on. At noon shivering began. At 2 p.m. the temperature was 101.8° , and the pain was less. Vomiting came on shortly afterwards, and continued almost incessantly until 7 p.m., when it ceased, and she was free of pain. The vomited matter was green and watery. The temperature was then normal and the pulse 86. The following day, August 20th, a similar attack came on about the same time. The urine was examined. It was reddish, with a specific gravity of 1027; neutral in reaction, containing bile, but no albumen or indican. The small round tumour was again observed, but this time on a level with the umbilicus. For several succeeding days, a similar course of events was observed. On the 2nd of September she had a fairly good day, except that she suffered from diarrhoea—six motions in the 24 hours. Towards evening an attack came on. At 6 p.m. the temperature was 104° ; at 8 p.m. 102.6° ; and at 1 a.m. 100.6° . Jaundice was pronounced. The diarrhoea continued for several days, during which time she had these attacks frequently. Morphin alone gave her temporary relief, and it became evident that, if unrelieved, she must, ere long, sink from exhaustion. We accordingly determined to make an exploratory abdominal section, and to see if anything could be done.

The diagnosis in this case was one of unusual difficulty, and in the absence of many members of the staff on their holidays, Dr. Beatty and I had the advantage of Dr. Walter Smith's advice and counsel. There were two tumours. Of the one occupying the right side, with a vertical left border, from the costal arch to very nearly the crest of the ilium, and which could always be felt, I was very uncertain as to the nature, and could not hazard an opinion; but it was believed by some who saw her that it was a malignant growth. As to the second tumour, I at first thought that it was a kidney, from its smooth and solid feel, but the day before operation I thought, most probably, that it was a distended gall-bladder—probably containing calculi.

On the 10th of September, 1887, the operation was performed. The patient was first put under the influence of chloroform, and narcosis was maintained with ether. An incision five inches long was made along the right linea semilunaris, and the peritoneum, when reached, was divided to the same extent. Having passed in my hand, I first explored the large tumour, and then found, to the surprise of us all, that it was an abnormal formation of a healthy liver. It was nothing more or less than a vertical lobe of the liver, evidently an extension downwards of the right lobe. It was quite healthy and did not require surgical interference. I may add that I was the more surprised because I had not hitherto seen such an abnormality, nor was I aware that such an one existed. Being satisfied as to the larger tumour, I next explored the kidney. It was quite healthy, but also presented a remarkable conformation, for the upper third of it was bent forwards upon itself, so as to present a concavity not only along its inner border, but also on its anterior aspect.

I now turned my attention to the gall-bladder, which was found without difficulty. It was somewhat distended, and was about the size of a goose's egg. On examining it with the fingers, several gall-stones could be distinctly felt within it. I then passed my fingers beneath it, and tracing it up to the duct, carefully explored the latter in order to ascertain if there was a gall-stone impacted anywhere in either the cystic or common bile duct. No such obstruction could be detected. The gall-bladder was now drawn into the abdominal wound, but before proceeding to open it I closely sutured the edges of the parietal peritoneum to the peritoneal wall of the gall-bladder, all round, apposing serous surface to serous surface. The remaining portion above and below of the

original incision in the peritoneum was also closed with suture. By these means a portion of the anterior wall of the gall-bladder, about the size of a half-crown, was exposed in the wound, and at the same time was completely shut off from the abdominal cavity. A small incision was next made into the gall-bladder, and at once a quantity of thin bile gushed out, and was caught in sponges. The incision was then enlarged so as to admit of a pair of forceps and a finger being introduced. Three large-sized and facettèd stones were thus removed, and subsequently a small crescentic one. No more stones could be discovered, so the interior of the gall-bladder was irrigated out with a warm solution of corrosive sublimate (1 in 2,000). A piece of thick mucus was seen floating by its free end in the fluid; this was caught in a forceps, and as it was gradually extracted, it came out as a thick mucous plug from the neck of the gall-bladder. It evidently had formed a plug helping to block up the cystic and common bile ducts. As no other obstructive cause could be detected, I proceeded to close the abdominal wound. This was done, by first suturing the edges of the opening in the gall-bladder to the skin, and then approximating the edges of the remainder of the skin incision. A large drainage-tube was inserted into the gall-bladder, and the wound dressed with the ordinary antiseptic dressings. The patient quickly recovered from the ether, and in the evening got a small hypodermic injection of morphin, after which she passed a tranquil night. She complained of no abdominal pain, excepting a severe pain in the wound whenever she coughed, and which lasted for several days. This was evidently due to the fixing of the previously movable gall-bladder to the abdominal wall. The following morning the dressings were found saturated with bile, and had to be removed. That evening the temperature rose to 100.8° F., but next morning it had fallen to 99° , and did not again exceed normal limits during her whole convalescence. In fact it was always subnormal, from the third day onwards, with one exception, when it reached 99° .

On the third day the drainage-tube was taken out, cleaned and put back again; on the fourth day it was removed altogether. The entire wound healed by first intention, without the smallest attempt at suppuration, with the exception, of course, of the fistulous opening into the gall-bladder; and this is the more interesting, because during the whole period of healing the parts were constantly bathed in bile. We thus see that bile, in itself, in no way hinders the process of healing in a wound which is kept aseptic.

As there was no motion from the bowels up to the third day, the patient was given two grains of calomel in the morning, to be followed in the evening by an enema containing two ounces of castor oil and an ounce of turpentine suspended in two pints of water. This produced a copious evacuation, and henceforward the bowels acted daily regularly. Some bile made its way into the intestine, as the fæces were slightly tinged; but by far the greater portion of it poured out at the wound. By degrees the opening in the gall-bladder gradually diminished, until it would not admit anything larger than a full-sized catheter. I made several attempts, by pressure, and variously-constructed pads, to prevent the bile flowing through this abnormal opening and to try and force it through the natural opening into the duodenum, but every attempt failed. The bile always forced its way past any obstacle which was applied, and it soon became clear that the patient was suffering from some organic stricture of the ductus communis choledochus. At the time of operation I satisfied myself by digital exploration that there was no impacted gall-stone, and no tumour present; so I have been obliged to conclude that there is a fibrous stricture present, which only allows a small quantity of bile to leak through it.

The patient left hospital on Nov. 12, 1887, with a fistulous opening in the side, which discharged almost the entire bile secretion. She was in very good health otherwise, and had put on a little flesh. I again saw her last summer; she had greatly improved in general health, and had grown quite fat. The sinus still discharged freely, and although the bowels acted regularly, the fæces were scarcely at all stained with bile. From the day of operation until I last heard of her, she had had no return of the abdominal pain and no more aguish attacks.

The first operation for the removal of gall-stones, by opening the gall-bladder, seems to have been performed by an American, Surgeon Bobbs,* on the 15th of June, 1867. The feasibility of the operation had previously been suggested by Thudichum^b in 1859. In Dr. Bobbs' case, a previous diagnosis as to the nature of the case had not been made, and it was not until the gall-bladder was opened that the true state of affairs was realised. The patient recovered. The first pre-determined cholecystotomy was performed by Marion Sims on the 18th of April, 1878,^c but unfortunately

* *Trans. Ind. State Med. Society.* 1868. P. 63.

^b *Brit. Med. Journ.* 1859.

^c *Brit. Med. Journ.* 1878.

the patient collapsed. The third operation of this kind was by Kocher in 1878,^a and was perfectly successful; the fourth was by Lawson Tait,^b and was performed on the 23rd of August, 1879, and to him, more than to his predecessors, is due the credit not only of having made this operation a recognised surgical procedure, but of having placed it "within the first rank of modern operative proceedings."

Since 1879, the operation has been performed in every part of the world, and experience has shown that it is by no means a very fatal proceeding, although no surgeon hitherto has been able to reach the brilliant standard attained by Mr. Lawson Tait. In the *Lancet* of April 14th, 1888, he shows that he has operated forty-one times with only two deaths, and neither of these could well be attributed to the operation.

Arguing from these statistics, he says:—"It is perfectly clear that when there is an absence of cancerous complications, and the age of the patient is such as to give her a fair chance, the recovery from this operation is almost certain, and the amount of relief obtained from it most amply compensates for the small amount of risk."

In the case which I have just detailed, I think all will agree that the operation was not only justifiable, but urgently needed. To those who have followed the history of the case up to the morning of operation, I think it will be clear, as it was to all those who had an opportunity of seeing the patient at that time, that her life was in the greatest danger; and even those who thought that the larger tumour felt was of a malignant character, did not hesitate to sanction an exploratory operation, so critical was her condition. But even when life is not immediately threatened, the agonising attacks of biliary colic are proverbial, and surgeons at any rate will be grateful that they have at last a method of treatment at their command, which in itself is not more dangerous in the long run than the treatment by morphin and the warm bath, and is productive of infinitely greater relief.

Before bringing this paper to a close, I would like shortly to call attention to a physiological point of some interest. We have been accustomed to look upon the bile as of some importance in the digestive and other processes which take place in the intestinal canal. We do not attribute to it an importance of the first

^a Corr. Bl. für schweizer Aertze. Bâle. 1879.

^b *Lancet*. 1879. Vol. II., p. 780.

order, as was claimed for it in former days, but at least we believed that it had some uses—and this has been enlarged upon in many works on physiology; but this case, and some other somewhat similar cases which have been published, show that patients enjoy the best of health, digest their food admirably, if we are to judge by their improvement in weight and healthy colour, and are not specially afflicted with constipation, when very little, and sometimes no bile at all, makes its way into the duodenum. From such practical experiences, I think we are led, logically, to conclude that the bile is an excretion, and is of little, if of any, use as a secretion, in the economy of the human body.

ART. III.—*The Position of the Study of Pathology.** By J. MAGEE FINNY, M.D., F.K.Q.C.P.I.; King's Professor of Practice of Medicine in the School of Physic, Trinity College, Dublin; and Clinical Physician to Sir Patrick Dun's Hospital.

MY first duty on taking the Chair of the Section of Pathology is to convey to you my sincere thanks for having conferred on me the high honour of electing me to it; while I much regret that I have not at my command language adequately expressive of my feelings. No professional honour is so great, no distinction so high or so valuable, as that which one's fellow-workers and compeers confer. I can but assure you that your action has filled me with the sincerest sentiments of gratitude and pleasure—the more so as I am only too conscious that my position as President of this important Section is the exponent rather of your good-will than of my own merits.

This reflection brings with it, however, its own consolation; as, if by your kindness I occupy this chair, the same kindly indulgence and support will, I feel sure, be extended to me in the discharge of such duties as I shall be called upon to exercise during the ensuing session.

According to usage, as I am informed, and in conformity with the instructions I have been favoured with by the Secretary of this Section, one of these duties—the first, and perhaps the most difficult—is to begin this opening meeting with some remarks from the chair.

* Being the Opening Address delivered by the President of the Section of Pathology of the Royal Academy of Medicine in Ireland, on Friday, November 2, 1888.

For the following remarks I crave your indulgence, knowing full well how far short they fall of what is your due at my hands.

If, however, I may be pardoned for further reference to the personal aspect of this occasion, I feel it a special honour, attended with much gratification, to be placed at the head of this particular Section, because in it—or rather in the old Pathological Society of Dublin, of which it is the direct and lineal descendant—my first essay in pathology was made, nearly a quarter of a century ago, in the presence of the leading physicians and surgeons of that day. And how well one remembers his first communication! How vivid are the recollections of the surroundings—the audience, the friendly criticism, and the encouraging marks of approbation on the part of those whose opinion was looked up to, and whose words of counsel were cherished!

In that old society, with which I was connected as, first, student associate, then member, and, lastly, councillor, our meetings were held weekly, and the communications dealt with recent specimens—unsurpassed anywhere for variety and range of pathological anatomy. As discussion was not permitted at the time I refer to, and for many years subsequently, its proceedings were, indeed, considered by some comparatively quiet—nay, sometimes even, though very rarely, errors of judgment were evident on the part of some exhibitors, and in a few instances—owing probably to want of time in the examination and preparation of the morbid specimens—many points of interest were passed over or unheeded. Nevertheless, those meetings had a charm peculiarly their own, and this charm lay in the combination of accurate details of daily clinical observation of the symptoms and progress of disease with the exhibition of the morbid conditions which produced the fatal termination; and no regular attendant could fail to learn much of macroscopic pathology in relation to diseased organs and tissues. Especially during any outbreak of epidemic disease was this the case; as, for instance, during the inroad of epidemic cerebro-spinal fever in this city in the years 1863–65, so that the severity and extent of its ravages could be accurately gauged, as well by the number of the specimens exhibited as by the various stages of disease at which its fatal influence was demonstrated before the members of that society.

In thus referring to the old Pathological Society of Dublin, which enrolled among its members and witnessed at its weekly meetings such men of learning and high professional standing as

Stokes, Adams, Robert Smith, Law, Corrigan, and others, I have done so in no spirit of disparagement towards our Section of Pathology—nay, rather, with the intention, by a healthy retrospect, to stimulate our energies to make it as worthy of the profession, and of the subject it deals with, as the old society incontestably proved itself to be in its day. Although from its amalgamation with the other societies to form the Academy of Medicine in 1882, and from the fact that the meetings are now held but once a month instead of once a week, something has been lost; and although the study of pathological or morbid anatomy cannot, therefore, be now conducted on the same lines and within the same wide limits as formerly, I would refer with confidence to the work done in this Section during the immediate past session, and the five preceding sessions, as a warrant of its vitality and an omen of its future growth. Nevertheless, I would venture to urge upon the Fellows and Members of the Academy, each as his opportunities may arise in this session, to contribute some specimen, some fact, or some well-considered theory or view, bearing upon the wide and varied subjects which are included in the term "Pathology."

Sir James Paget, than whom, on this subject, no one is more competent to give an opinion, said last year (Path. Soc., London) that "Pathology, as distinguished from practical medicine, used to be regarded as scarcely more than morbid anatomy, but now there is in it work not only for the anatomist and physiologist but for the clinical observer, the experimentalist, the minutest microscopist, the statistician, the chemist, the naturalist, the historian, the psychologist, and yet more."

In a field so wide, taste, ability, and scientific interest must surely find opportunity and scope for good work in one or more of the avenues which lead to the Temple of Truth.

Leaving to others who are more competent to discuss many of the branches of the subject detailed by Sir James Paget, I, for my own part, would lay particular stress upon the advantages and usefulness of recent specimens of gross pathology of organs whose clinical and ætiological features have been carefully watched and recorded. In this combination lies the influence for good which pathology wields, and hardly too much stress, in the present day, can be laid upon its advantages to the practical physician and surgeon in the diagnosis and treatment of disease. There has been of late perhaps, more particularly among the juniors of the profession, a tendency to ignore macroscopic pathology, and to view the subject

in the more limited field of the microscope, and to suppose that relatively to the power used is the interest enhanced. There is, however, a great deal more to be learned of general pathology by observing the effects upon the circulatory and nutritive changes in the body produced by, for example, a tumour than by deciphering the histological characters of the tumour. The hand, the eye, and the scalpel will be quite sufficient, in the vast majority of *post-mortem* examinations, to afford a clear comprehension of the pathological changes and their effects, local and general.

I trust, therefore, in the coming session no one will be deterred by a feeling of insufficient microscopical opportunities or knowledge from coming forward and illustrating by specimens the causes of or the ravages made by disease. In our Section every help is welcomed—every effort to advance the science of medicine has its place. Nay, further, the very fact of making an autopsy and discussing the morbid products at our meetings must tend to make us better physicians and surgeons, and at the same time less over-confident in diagnosis and self-asserting in prognosis and treatment.

Our position in the Royal Academy of Medicine, it has often occurred to me, is at once unique and yet in touch with those subjects more properly belonging to the other Sections. We are at variance with none; we can help all. It would seem to me that the Section of Pathology is the centre round which revolve in wider or narrower circles Medicine, Surgery, Midwifery, Anatomy and Physiology, and State Medicine.

I suppose everyone will readily acknowledge the intimate relationship between Pathology and Medicine and Surgery. Is there any doubt as to a like bond of union with State Medicine? There certainly should be none, for State Medicine—including Preventive Medicine and Sanitary Science—is, as you know, directly concerned with the spread of disease, its origin, and modes of propagation. Will it not be conceded that the study of general pathology is the basis of the revolutions produced by antiseptic surgery; the triumphs of Pasteur in relation to human, bovine, and avial disease—the inestimable benefits of vaccination; and the immunity from disease of zymotic and parasitic nature, by securing purity of the water we drink and of the air we breathe?

More striking still—because our knowledge in this department is daily advancing—is the insight we have obtained by pathology as to the physiology of many organs in the body—as, for example,

the mechanism of the cardiac second sound, the arterial and venous collateral circulation in cases of occlusion by an embolus of a main vessel of a limb, and the absence of such circulation in the terminal vessels of the spleen, the lungs, and parts of the brain. But perhaps in no region of the body more than in the central nervous system is this point better illustrated. What the dissecting knife and armamentaria of the physiological laboratory have failed to demonstrate, has been made plain to the senses of sight and touch by the morbid changes which have been termed "secondary degenerations." Be the primary lesion (traumatic or inflammatory) in the brain above or in the cord below, the motor or sensory paths can be accurately investigated through the pons and the medulla by means of the tracts of descending or ascending degenerations, and, as Dr. MacEwen aptly says, "it is now accepted beyond controversy—that were before chimerical speculations—that there are points in the human cerebral cortex intimately related to motor and sensory functions of certain parts of the body."

And now, as a close to these desultory remarks on the position of the study of Pathology, and as a striking and conclusive commentary on its practical value in Medicine and Surgery, I would briefly refer to the work of the last session in relation to brain surgery—a subject of peculiar interest to the physician—and would point to the communications of Dr. C. B. Ball, Sir William Stokes, and Mr. Thornley Stoker, as brilliant illustrations of the value of pathology in forming an accurate diagnosis and in guiding the surgeon's knife and trephine to the particular seat of disease within the skull. Advances in this direction are being made "all along the line" in other parts of the United Kingdom, so that by the felicitous combination of diagnostic perspicuity, surgical skill, and a sound pathological knowledge, many a sufferer from localised cortical lesions has been saved from death, and paralysis or epileptic seizures have been removed.

ART. IV.—*On Sulphonal*.^{*} By CONOLLY NORMAN, F.R.C.S.I.;
Medical Superintendent, Richmond (Dublin District) Asylum.

I AM anxious to bring under the notice of the Association a drug which, as far as I am aware, has not been used heretofore in this country, and which in my hands has yielded very favourable results. My attention was first attracted to sulphonal by my esteemed friend and colleague, Dr. Banks, who pointed out to me the article by Cramer, of Freiburg, in the *Münchener medicinische Wochenschrift*, No. 24, 1888. The drug has been pretty extensively used in Germany as a hypnotic from the beginning of the present year. Originally discovered by Baumann, it was first applied with this object by Kast, afterwards by Rabbas, Rosin, Esterreicher, Salgo, Schwalbe, Cramer, and subsequently by Otto (*Zeitschrift f. Psych.*, XLIV., 4). More recently Funaioli and Raimondi (*Archivio Italiano per le Malatie Nervose, &c.*, Sept.-Nov., 1888) have experimented upon it. I am indebted to the kindness of my friend, Dr. Rutherford, of Dumfries, for drawing my attention to the observations of the last-named authors. From their memoir, and those of Otto and Cramer, I have drawn most of my information as to the work hitherto done with sulphonal.

Sulphonal is obtained from the combination of ethyl mercaptan and acetone by the process of oxidation. Its full name is diethylsulphon—dimethylmethan, and its chemical formula is $C_7H_{16}S_2O_4$ (Baumann).

I have up to the present time used sulphonal in about thirty cases. Of these, twenty-two have been carefully noted; of the remainder, I regret that I have not been able, for one reason or another, to preserve accurate notes. Therefore I must be content to say of them that I had no untoward results, and that I was satisfied that the object desired—the procuring of sleep—was generally obtained.

The following are brief abstract notes of the use of the drug in twenty-two persons, with such outline sketches of the mental and physical state of the patients as seem requisite for the comprehension of the cases:—

CASE I.—C. S., male, aged thirty-two. Admitted January 9, 1888. He suffered from profound melancholia with suicidal tendencies. Attributed his illness to masturbation, which he had practised from the age of

^{*} Read at the Quarterly Meeting of the Medico-Psychological Association, held in Dublin, November 29, 1888.

thirteen. A slight improvement took place after admission; then paroxysms of anxiety and desperation occurred from time to time. Masturbation was indulged in, and the patient passed into a pseudo-maniacal condition. By day shouting incoherently, assaulting those around him, destructive and restless. By night destructive, sleepless, and masturbating excessively. Sulphonal, gr. 30, administered at 10 o'clock p.m. on October 8, 1888, and continued till November 13, with a few exceptions. When, through the drug running out, or for purposes of control, he did not receive sulphonal, he was sleepless. After sulphonal he fell asleep in periods usually varying from one to two and a half hours. He slept on an average five and a quarter hours, and during the continuance of the medicine the length of sleep increased. Sleep commonly unbroken. While taking sulphonal he ceased to masturbate at night. He became tranquil by day, and his physical condition improved. No unpleasant results whatever were observed. This patient is now convalescent.

CASE II.—D. R., male, aged twenty-six. Admitted January 5, 1887. Had been a tippler for years, and was in feeble general health when admitted. Slight improvement in bodily condition, none in mental state. By day listless and apathetic, refusing to work, and seeming to take no interest in anything around him. Either will not reply to questions, or answers wildly out of mere wantonness. In the beginning of October, 1888, he had been for some time sleeping little, restless, and much addicted to masturbation at night. Sulphonal was given in 30-grain doses from October 8 to November 14. Patient usually fell asleep within an hour, frequently within half an hour. Average sleep procured, six hours. Sleep usually sound, patient at most awakening twice in the night, and for a few minutes at a time. He appeared somewhat brighter during the day, but this is doubtful. No unpleasant consequences were observed. Since the discontinuance of the drug, the patient continues to sleep much better than formerly.

CASE III.—E. R. F., male, aged twenty-four. A recent case of intense melancholia with incessant attempts at suicide; delusions that he had committed all kinds of abominable sins, that he was consequently turned into a pig, and so forth. Inclined to refuse food. No paroxysmal disturbance or anxiety, but calm despair. Sleepless at night, with excessive masturbation. Sulphonal, gr. 30, at 10 p.m. on the nights of October 8, 9, and 10. Result, six hours' sleep of a somewhat broken character. October 11, the drug was given at 7 o'clock p.m. Patient slept from 10 p.m. to 5 a.m. without disturbance. On October 12, he showed symptoms of dysentery—a disease which is unfortunately endemic in the Asylum. Sulphonal was continued till the 15th, and appeared to favour sleep, but of course the patient's rest was broken by constant calls to stool. In view of the observations of Otto and Schwalbe (to be referred

to subsequently), sulphonal was then discontinued. The bowel trouble took an unfavourable course; there was considerable hæmorrhage, and the patient died a fortnight later. I was unfortunately unable to obtain an autopsy, but during life the case differed in no way, as a case of dysentery, from many which it has been my misfortune to deal with during the last couple of years.

CASE IV.—D. D., male, aged twenty-three; three months ill. An overgrown, ill-developed young man; thin, very anæmic, with feeble circulation; suffers from ordinary melancholia stupida. Scarcely answers when spoken to, the usual response being a few tears. Occasionally somewhat restless by day, not paroxysmally. Very little sleep; masturbates at night; sulphonal, grains 30 at bedtime—Oct. 8 to Nov. 13. The result, on an average, was nearly six hours' sleep. On three nights awoke several times, but slept on the whole about five hours. Mostly only awoke once or twice; sometimes there was six hours' unbroken sleep.

CASE V.—M. T., male, aged twenty-eight; two months ill. A case of acute melancholia. On admission, and episodically since, there has been such excitement and restlessness that the case resembled one of acute mania. At other times silence, evident profound misery, and constant quiet restlessness. Tendency to refuse food, sometimes requiring artificial feeding; almost complete sleeplessness. Wasted quickly, and was in very poor general health. Sulphonal, grains 30 at night—Oct. 8 to Oct. 22—produced an average of four and a half hours' sleep. During its use no excitement, otherwise no mental improvement apparent. No bad results.

CASE VI.—J. S., male, aged twenty-eight. A mild case of *delirium tremens*. Had not slept for eighty-four hours before admission; did not sleep the night of admission. On the second night, having then been 108 hours without sleep, he received grains 30 of sulphonal at 9 p.m. Slept from 12 to 5 30. Condition greatly improved next day; took food heartily, which he had not been able to do before. Third night, sulphonal, grains 30—9 p.m. Slept "all night;" next morning lucid, steady, appetite good. From this time there was no return of illness, and the patient made a good recovery.

CASE VII.—B. M., female, aged thirty. Chronic weakmindedness in a woman of wretched physique and general health, with recurrences of acute melancholia. Present, which is the second illness for which she has been under treatment in the Richmond Asylum, has lasted since the beginning of September, 1888. In the beginning of October she was sleepless, and very restless at night; by day silent, restless, anxious, disposed to refuse food, sometimes requiring artificial feeding. While in

this state she was put on sulphonal, grains 20, at 9 p.m., continued for fifteen nights. Notwithstanding that the first two nights were disturbed, and though not absolutely sleepless are calculated as being so, yet the average sleep record for this period is seven hours, forty minutes. No bad symptoms of any kind; return of appetite; great gain of calmness during day. Now convalescent.

CASE VIII.—M. A., female, aged forty. A recent case of intense melancholia agitata; delusions that her children have been killed, that she is going to be burned, &c. Frenzied shrieking, hand-wringing, and rushing to and fro. Had to be forced to take sufficient food; physically anæmic and wasted. Oct. 17, 1888, sulphonal, grains 25, at 10 p.m.; the same dose at varying hours was given for nine nights. Patient usually fell asleep in from one to two hours—average sleep, five hours, fifty minutes—the length of sleep increasing under the use of the drug. While sulphonal was being used there was certainly less difficulty than formerly in getting patient to take food. Otherwise there seemed to be no change in her condition by day. No unpleasant symptoms.

CASE IX.—N. M., female, aged thirty-two. A recent puerperal case, admitted ten days after childbed. Somewhat anæmic, but in fair general condition; almost absolutely silent. From time to time violent and destructive in a frenzied way; would not take food, and frequently required artificial feeding. Probably delusions of a melancholic or persecutory type; absolutely sleepless at night. Administration of medicine difficult; sulphonal given altogether ten times; grains 25, four times, producing respectively five hours, two hours, and six hours' sleep. Then for eight nights the patient would not take the drug, and scarcely slept at all. Grains 30, given six times; average result, six hours' sleep. Patient became calmer by day, and took food; medicine being left off, improvement continued. Patient is now progressing towards convalescence.

CASE X.—H. E., female, aged thirty; two years ill. An old standing case of chronic melancholia, with tendency to organised delusions on sexual subjects. Excessively addicted to masturbation; she is always untidy and restless by day, and is liable to sleep badly of nights. Occasional exacerbations of melancholia, characterised by anxiety, frenzied restlessness, and complete absence of sleep. During these outbursts it is difficult to get her to take sufficient food, as she thinks food is intended to kill her, and so forth. An attack of this sort occurring in October and November, 1888, was treated by administration of sulphonal, grains 20, at 9 p.m. Fell asleep from one to two hours after the medicine; average time slept, five hours, twenty minutes; no unpleasant symptoms observed. The attack was, perhaps, somewhat shorter than usual, and there was certainly less difficulty than usual about feeding.

CASE XI.—R. E., female, aged fifty; fair physical health. Present is the second attack of melancholia for which she has been under treatment in this Asylum, and has now lasted about six months. Dulness, with outbreaks of anxiety, therewith fretfulness of temper and attacks of pseudo-hysterical violence. Improvement followed by relapse; complaints, well-founded, of almost complete sleeplessness. Sulphonal, grains 30, at 9 p.m., given for three nights, produced eight or nine hours' tranquil sleep, followed by calm days and no apparent unpleasant consequence. Return to *status quo ante*.

CASE XII.—T. M., female, aged thirty-four. Of a family saturated with insanity, several members of which have been under treatment here. The present is the patient's second attack of insanity—is of many years' duration, and perfectly chronic. Commonly weak-minded and manageable, she gets, from time to time, attacks of restlessness, during which she is sleepless, mischievous, very incoherent, and talkative, unable to fix her attention, or to be occupied in any way. While in this state she gets out of bed and wanders through the dormitory, chattering and pulling at the beds. One such attack was treated with sulphonal, grains 20 at bedtime, for three consecutive nights. It always produced quiet and sleep by night; the patient also became calmer by day, and the attack appeared to be cut short.

CASE XIII.—J. S., female, aged fifty. The woman had been a tippler; she had suffered from rheumatic fever; she has mitral valve disease. She has suffered for many years from recurrent attacks of maniacal excitement. At first these were of some months' duration, and separated from each other by a year or two of mental health. Of late the attacks are shorter and more frequent; they are ushered in by well-recognised prodromal symptoms, inability to work or fix the attention, dulness, varied with a giggling, silly flippancy. During the attacks she is salacious, untidy, noisy, and sleepless. Several times, in the prodromal state, an attempt has been made to abort the attack by administration of morphin, urethan, or hypnone, but without apparent effect. On one occasion recently, the prodromal stage being very distinct, though sleeplessness had not yet become a prominent symptom, sulphonal was administered in 20-grain doses for two consecutive nights. Sound sleep, lasting about nine hours, followed, and the excitement, which had always hitherto supervened, did not occur.

CASE XIV.—In the case of an elderly female dement suffering from jaundice, apparently caused by passage of gall-stones, and accompanied by much pain and total sleeplessness for several nights, 25 gr. sulphonal administered at 8 p.m., was followed by ten hours' sound sleep without any unpleasant after-results.

CASE XV.—In a lady of about thirty years of age, who suffered from recurrent melancholia, with almost absolute sleeplessness, sulphonal was administered in 20 gr. doses at 8 p.m., altogether a dozen times. It always secured sound and refreshing sleep, beginning at about 10 p.m. and lasting till 7 or 8 o'clock next morning. The lady, who was very intelligent, declared she experienced no unpleasant consequences whatever.

CASE XVI.—An elderly gentleman, suffering from insomnia, apparently associated with gouty malnutrition, but without any other definite assignable cause. Ordered sulphonal, gr. 30 at bedtime. He reports that he falls asleep about an hour and a half after taking the powder, and sleeps eight hours without interruption—a thing which he has not done for many years previously. He notices no ill results, and being fairly intelligent and somewhat hypochondriacal, his word may be depended on in this particular.

CASE XVII.—I have experimented in my own person with sulphonal, having taken it about thirty times in gr. 25 and gr. 30 doses. In half an hour after taking either quantity a feeling of drowsiness; in an hour a very decided sleepiness. Seven, eight, or even nine hours of unbroken dreamless sleep. In the tranquil dreamless nature of the sleep it produces it contrasts favourably with any other hypnotic I have ever taken. No loss of appetite followed its use, and no gastric or intestinal trouble. I always thought I experienced a certain slight and not unpleasant sense of fullness in the head in the morning.

In the following cases, five in number, sulphonal was used not only with the design of producing sleep, but as a calmate in the manner recommended by Otto. If the results were not as marked or as satisfactory as in his cases, it must be borne in mind that he gave much larger quantities (two and a half to three grammes in the day).

CASE XVIII.—M. O. W., male, aged thirty. A case of acute mania, of two months' duration; an underfed, delicate man, in wretched condition from the beginning of his illness. Constantly restless and noisy; required to be fed from mere carelessness; almost absolutely sleepless; wasting rapidly. From the 14th of November to the present time (Nov. 29) he has been receiving sulphonal, grains 8 thrice daily. For the first two or three days no effect was apparent; since then he has been decidedly calmer by day, and he now sleeps fairly well. A slight improvement in physical condition.

CASE XIX.—H. M., male, aged twenty-five; anæmic; suspected exhaustion from sexual excesses. Five months ill; intense melancholia,

with extreme tendency to suicide; sexual delusions; also delusions that his soul is lost, that he is going to be killed, &c.; no paroxysmal anxiety; quite incessant restlessness; sleep almost entirely wanting. Nov. 14, 1888, sulphonal, grains 8 thrice daily. Result, rapid improvement at night; now sleeps fairly well; little improvement by day, perhaps a trifle less restless, but by no means more lucid; improvement in general health.

CASE XX.—G. M. T., male, aged about seventy. Chronic senile mania, with intense restlessness, and great emotional excitability; a large, feeble heart and hard knotty arteries. This man's restlessness was so marked and distressing a symptom that almost every known sedative had been tried with him. None proved satisfactory, and methylal and amylene hydrate had produced alarming collapse. Sulphonal, grains 8 thrice daily. On the fourth day he was listless and feeble, not calmer mentally, but apparently suffering from a certain degree of muscular prostration. Sulphonal was discontinued; during its use he had apparently slept a little more than usual at night.

CASE XXI.—R. P., male, aged fifty; suffers from enlargement of the liver, and for years has suffered from dyspeptic troubles. Melancholia of a hypochondriac type, but without delusion, and with comparative integrity of intellect, in the limited sense of the word; extreme restlessness and misery, with strong tendency to suicide; sleep variable, but generally very bad. In this case, as in the last, many hypnotics and calmatives had been tried without effect. Sulphonal, grains 8 thrice daily, produced sensations of muscular prostration so severe as to cause its discontinuance on the fourth day. Hypnotic effects were doubtful.

CASE XXII.—K. M. A., male, aged twenty-nine. A recent case of acute melancholia. Somewhat anæmic; otherwise in fair health. Delusions that his soul is lost. Generally silent when spoken to, howling to himself. Sleepless and restless at night. Inclined to refuse food, though not actually requiring artificial feeding. November 14, sulphonal, grains 8 thrice daily. For the first two nights remained in bed and slept "a little." From that time has slept well. Much calmer by day. Has ceased to howl. Replies when spoken to, and appears to be gaining intelligence.

To summarise: (1.) Out of the twenty-two persons observed, in only two were any bad results noticed. These were specially unfavourable cases, and cases in which other sedatives had failed.

(2.) In no case was gastric or intestinal trouble observed.

(3.) In several cases (Nos. 3, 5, 7, 8, 9, 10, 18, and 22) refusal of food, or a tendency thereto, existed. This was overcome, and the appetite seemed to improve under the use of sulphonal.

(4.) In several cases (Nos. 1, 2, 3, 4, 10, and 19) masturbation and tendency to sexual trouble existed. The drug appeared to lessen the tendency to self-abuse and erotic excitement.

(5.) In some recurrent cases it appeared to check or shorten the attack.

(6.) Out of the limited number of cases treated the majority happened to be melancholiacs, but the drug seems to exercise a hypnotic and sedative effect in various forms of insanity.

(7.) No patient complained of the drug, or refused it for other reasons than delusional ones.

(8.) Sleep produced appeared to be natural, refreshing, and undisturbed by dreams.

In comparing sulphonal with other medicines having similar effects, it is needless to refer to the products of opium, or to chloral. Of the more modern drugs paraldehyde is, perhaps, the most used. Its great disadvantage is that it requires constant increase in the dose. As far as I can judge, this does not apply to sulphonal. Paraldehyde long continued is also stated by Fröhner to cause destructive changes in the blood corpuscles, while Krafft-Ebing points out that it occasionally produces symptoms resembling alcoholism. Urethan, to which I have given a pretty extensive trial, is uncertain, and of no great strength. Amylene hydrate is uncertain and dangerous, as Schlöss' cases prove (*Jahrbuch der Psych.*, VIII, 1 and 2). Methylal is liable to the same reproaches. Hypnone is undoubtedly of some value, I once thought highly of it, but I have found it uncertain, and it appears indisputable that patients soon become habituated to its use. All the three last-named drugs are so abominable in taste and smell that it is almost impossible to get patients to swallow them, and, as might be expected from this, they all upset the stomach.

The advantages of sulphonal are—(1.) It is absolutely free from smell. (2.) Otto states that it leaves on the mouth a faint bitter after-taste. This I myself notice, but it is very slight, and patients always say it is tasteless. (3.) It produced, in my cases, no gastric derangement, and no troublesome head symptoms; it does not affect the appetite. (4.) The sleep which it produces is relatively "natural."

Its disadvantages are (1) that it is bulky and practically insoluble, therefore difficult to administer; and that, perhaps owing to its insolubility, (2) it is slow in action. A further practical disadvantage hitherto has been its very high price.

Otto tells us that in a few of the sixteen cases in which he used sulphonal solely as a hypnotic—i.e., giving a single dose at night—a slight degree of giddiness and unsteadiness, with a sense of weariness, was experienced next morning. The same phenomena occurred in some of Rosin's and Schwalbe's cases. Otto gave the drug with excellent effect as a calmate, in small and repeated doses during the day, in nineteen cases. He observed not only the head sensations referred to, but the occurrence of transient digestive disturbances—vomiting and slight diarrhoea—in less than half his cases. These troubles soon passed off, though the drug was continued, and he notes that in most cases the appetite was good. Schwalbe observed in some cases similar digestive troubles, but attributed no consequence to them. Funaioli and Raimondi, who appear to place sulphonal at the head of the list of hypnotics, have observed no unpleasant after-consequences. Cramer, writing in June, 1888, as the result of Rabbas' and his own experiments, conducted on forty-nine patients, could record no unpleasant consequences save an occasional slight drowsiness on the morning after a dose.

That unpleasant and even injurious results will be found to occur from the injudicious or continual use of sulphonal, and that it will be found to have its peculiar dangers, like every other potent drug, I have no doubt. The use of any drug to procure sleep or rest must at best be regarded as a deplorable necessity, and dangers should ever be apprehended from what must always be, to some extent, a blind interference with natural laws. In the case before us, however, it would seem that we are justified in saying that in sulphonal we possess a powerful and not disagreeable hypnotic, free from any immediate danger, and followed by very trifling, if any, unpleasant after-effects.^a

^a I should perhaps mention that the preparation which I have used has been the sulphonal manufactured by Bayer, of Elberfeld.

ART. V.—*An Address to the Section of Obstetrics of the Royal Academy of Medicine in Ireland.* By WILLIAM J. SMYLY, M.D., Univ. Dubl.; F.K.Q.C.P.; President of the Section of Obstetrics of the Royal Academy of Medicine in Ireland.

THROUGH your kindness in electing me to the Presidency of this Section of the Royal Academy of Medicine in Ireland, it now falls to my lot to address to you a few valedictory remarks, upon your labours in the past, as an introduction to our future work.

In considering the past Session, I would, in the first place, note the number of Provincial Fellows who have come, often long distances, and doubtless at much personal inconvenience, to contribute to our proceedings, and to join in our discussions. Dr. M'Mordie, for example, came here from Belfast on two separate occasions, and on both he contributed cases of much interest—one of which I would especially notice, in which the removal of a single enlarged ovary completely cured menorrhagia of long standing, the monthly flow being subsequently restored to its normal condition. This is a fact of much importance, whether viewed from a pathological or from a physiological standpoint. Mr. O'Callaghan contributed six cases of abdominal section, performed by him in the course of a single year, in the Carlow Infirmary; and Professor Kinkead, of Galway, read a paper upon the persistence of the hymen in pregnant women—a subject of much medico-legal importance. The presence and co-operation of these gentlemen is advantageous to us, not only from the value of their contributions to our Transactions, but also as a proof that we are the *Irish Academy of Medicine*, and not a mere local body. Not that I would for a moment cast a slur upon those Societies of which we are the immediate successors, and especially the *old* Obstetrical Society, of which we in this Section consider ourselves the representatives—the *oldest* Obstetrical Society in these countries. We are proud of the traditions of the past. We are proud that it was an Irishman and a Dublin physician who first thought of founding an Obstetrical Society. We are justly proud of the great men whose names adorn its history, and of their contributions to our knowledge and literature! but still we prefer to be no longer merely a Dublin Society, but a Section of the Royal Academy of Medicine in Ireland.

It has been said, gentlemen, that our Academy has proved a failure! and if this be true of the whole it must be true of the

part also; but I, for my part, fail to see that this is so. In this Section our attendances have been as large as formerly; we have had more recent specimens brought forward than could be exhibited, and, as a rule, more contributions, than the number of meetings allotted to us would allow of being read. It has been suggested, however, that some of these communications were wanting in originality. Now, it is doubtless one of our chief functions to bring forward what is new and original, and this Academy has done what it could to encourage original research; nor have we been altogether wanting in this respect. But we have another and perhaps as important a duty to perform, and that is—teaching. It is reserved to the few to originate, but it is the duty of all to diffuse; and as the moon, which reflects the sunshine, is a greater blessing to the world at large than the little worm that creeps in the faint gleam which itself has generated, so it is of greater importance that every practitioner in Ireland should possess a practical knowledge of the life-saving truths of modern midwifery than that a limited number should gain celebrity, even by original research. We all come here as learners, and no man learns more from the papers read to us than those who write them. But the general diffusion of knowledge, and the popularising of important methods of treatment, by this and similar Societies all over the civilised world, have been of incalculable benefit to mankind at large; and if I were to select those communications and discussions, which appear to me to have been of the greatest importance in the past, and to promise the best results in the future, I should choose those upon such subjects as puerperal fever, eclampsia, placenta prævia, *post partum* hæmorrhage, and the use of the forceps. Permit me to illustrate these benefits by a few examples. In reading the works of the older authorities, we are often surprised to find that methods, supposed to have been quite recently introduced into practice, were known to them. For example, dilatation of the cervix uteri by sponge tents was introduced to the profession, and popularised by the late Sir James Y. Simpson. His advocacy of the plan brought it into general use, and further observation soon revealed its dangers, as well as its advantages; this led to the discovery of new and improved methods, by means of which it could be accomplished with greater safety. Now, as Dr. More Madden reminded us last Session, sponge dilators were used long before Simpson's time; but the discovery never became known to the profession at large, and so sank into oblivion.

Similarly, in reading the writings of Dr. White, of Manchester, I was quite astonished to find that his views upon the nature and treatment of putrid infection were almost identical with those which we hold at the present time. He compared the uterus to a chronic abscess, putrefaction of the contents, in either case, causing fever. In order to prevent putridity, he advised absolute cleanliness; the air of the lying-in chamber must be pure, and cool; the water used should not contain any putrescible matter, the lochial flow should be prevented from stagnating, by allowing the patient to sit up, and even to leave the bed, so as to facilitate its escape. But even more remarkable is the treatment which he adopted where putridity had occurred, and he says:—"I must not omit to mention the good effects I have experienced from emollient or antiseptic injections into the uterus, by means of a large ivory syringe, or an elastic vegetable bottle. In those cases where the lochia have become acrid or putrid, and by being absorbed into the circulation, have served as a constant focus to the disease, I have by this means known the fever much assuaged, and in many cases wholly extinguished." Although this was written a century ago, yet until quite recently this method of treating puerperal fever was practically unknown. In 1871, Dr. Kidd, in delivering an inaugural address as President of the Obstetrical Society, mentioned that, at the instigation of Dr. Braxton Hicks, he had adopted the plan of washing out the uterus with a solution of permanganate of potassium, and that he had seen women thereby relieved of a very serious train of symptoms. This simple statement secured for the method an extensive trial, and since that time it has saved thousands of lives; and I doubt if at present any educated practitioner would consider that he had done his duty, if, in a case of this terrible malady, he had neglected to wash out the uterus with some antiseptic lotion.

Rarely, however, have we shown this childlike, teachable spirit; on the contrary, our branch of medicine had always been characterised by most obstinate conservatism; every innovation has met with ardent and determined opposition, and every reformer has proved more or less of a martyr. I could not produce two more remarkable instances of this than Recamier and Semmelweis. The introduction of the curette by the former was met by a storm of angry opposition; the facts elicited were of no avail against the theoretical objections urged against its use, the most potent of which was that, by destroying the mucous membrane,

sterility would be certainly the result. This illusion has, however, been dispelled, and the method, though almost nipped in the bud, has bloomed into general acceptance; and under the favouring influences of a number of ardent and skilful investigators, has already yielded quite unlooked-for fruits. In the Report of the Rotunda Auxiliary Hospital, which was presented to us this year, one of the most remarkable features was the frequent use of this instrument in the diagnosis and treatment of the diseases of the endometrium. You will, I hope, bear with me, whilst I mention some of the results which it, combined with microscopic examination of the particles removed, have yielded. In the first place, then, we have at length learned that the uterine mucous membrane is not cast off during menstruation, but that, on the contrary, particles removed from the living, menstruating uterus are found still to possess even the ciliated epithelium. The menstrual decidua is therefore a myth, and denudation does not occur. Further, we have learned the exact anatomy of the various forms of endometritis, and their cure has become more frequent and much more expeditious. Clinical experience has confirmed the statement of Düvelius, that, so far from causing sterility, this method of treatment has cured that condition, and thus we have learned that endometritis is a cause of unfruitfulness. In a paper which I had the honour of bringing before you on a former occasion, I stated that though women, whom I had curetted, had subsequently borne children, yet I had not, at that time, met with a case in which this occurred in a woman who had previously been sterile. I am now, however, able to lay before you notes of two cases of this kind.

The first case is that of Mrs. J., who consulted me in January, 1887. She had at that time been married seven years, but had never borne a child. Shortly after marriage she missed one menstrual period, and as the flow was rather more profuse than usual on the next occasion, she thinks she may then have miscarried. She complained to me of very profuse losses recurring at irregular intervals, generally within a fortnight, attended with pain, and expulsion of clots. The uterus was enlarged and the sound passed to a depth of $2\frac{1}{4}$ inches, and caused some pain, and hæmorrhage. The curette brought away large masses of hyperplastic membrane, which confirmed the diagnosis of fungous endometritis. Liniment of iodine was injected subsequently, and her recovery was complete, the hæmorrhage never returning. Some months after she became pregnant, and at full time was delivered of a healthy male child.

The second case is a Mrs. W., who is at present an out-patient at the City of Dublin Hospital. She came there complaining of scanty menstruation; sometimes it would cease altogether for months, but when it did come on, it was scanty and painful. She also complained of leucorrhœa, and though eight years married, had never proved pregnant. In 1887 I took her into the hospital, and curetted the uterus. I also divided the cervix, so as to facilitate the introduction of the instrument. She is now in the sixth month of her first pregnancy.

The curette has also proved very valuable in the diagnosis of malignant disease of the uterine mucous membrane, and has rendered detection possible, at a time when, by the complete extirpation of the uterus, a radical cure may be reasonably anticipated. Three successful cases of this operation were reported to us last Session by Dr. Macan, and I hope that he will keep us informed of their future progress.

Improved knowledge of the diseases of the uterine mucous membrane, in women who were not pregnant, has led to the investigation of its condition in those who were, and with remarkable results. The examination of the decidua, in cases of abortion, has shown that, in a large proportion, it is in a state of inflammation—so often, indeed, that Dr. J. Veit, of Berlin, has been led to the conclusion that endometritis is the most frequent cause of this accident. The forms of the disease met with in pregnancy are precisely the same as those found under other conditions. These morbid changes are often apparent to the naked eye, but occasionally can be detected only by microscopic examination. The symptoms, too, are similar—namely, leucorrhœa, hæmorrhage, and probably pain. A very interesting phenomenon, to account for which many ingenious but not very satisfactory theories have been advanced—namely, hydrorrhœa gravidarum, has been proved to be the watery discharge of corporeal endometritis. The decidual glands being greatly increased in number and size, and their secretion proportionally augmented, the decidua reflexa and vera are kept asunder, and fail to unite at the usual time; thus a space is left, which gradually becomes distended with fluid, until the resistance being suddenly overcome, it escapes in gushes, with or without uterine contractions. Hæmorrhage occurs in a variety of ways, and is frequently the exciting cause of abortion. The blood-vessels in the diseased tissue give way more easily than in healthy membrane, and the effused blood may separate the entire ovum from

the uterine wall; or it may be effused into the ovum itself, forming a blood mole; or, at a later date, hæmorrhages into the decidua serotina cause placental apoplexy; or larger effusions concealed internal hæmorrhage—an interesting case of this was brought under our notice by Mr. Horne—or if it escape externally it is generally known as accidental hæmorrhage. Endometritis has also been thought to play an important part in the causation of placenta prævia. The action of the cilia of the intra-uterine epithelium being in an upward direction, probably delays the descent of the ovum; but where this epithelium has been destroyed by disease, the ovum is liable to descend more rapidly towards the lower part of the cavity, and there to adhere. In addition to all this, endometritis is the cause of abnormal adhesion of the placenta—a rare condition; but it also causes retention of the decidua, which is a very common one, and it is probably the chief factor in habitual abortion. I need not point out to you the practical value of all this, the outcome of Recamier's simple method of investigation.

I shall not now delay you long in speaking of Semmelweis—a name we cannot mention without regret; had we but learned of, instead of resisting and vilifying, him, we should have led the van, and might have taught the general surgeons the value of antiseptic treatment; but the reverse of this has happened—the surgeons have taught us, and it is through them that we have at last come to recognise the truth of Semmelweis' theories.

In this connection I must not omit a reference to what all will agree are the most important of the communications which have been made to us—I allude to the Clinical Reports of the Rotunda Lying-in Hospital, which are, in themselves, sufficient to establish the reputation of this Section as a teaching body. The information to be derived from their study is immense, as Dr. Mathews Duncan—I suppose the greatest living authority on such a subject—has stated: “It is to be valued to a degree which no other statistical information can approach, because of the long time and the large numbers involved in this great hospital's experience.” Now, in these Reports no subject has attracted the attention of the profession so much as the puerperal mortality. It is to the credit of this hospital that its average death-rate has been lower than that of other similar institutions; yet so high has it been, compared with that in private dwellings, and so severe were some epidemics of disease, as to necessitate its complete closure from time to time;

and we know, even those of us who were not present at those exciting debates, that it has more than once been put on trial for its life before this Society. It is therefore a most gratifying fact that the Master has been able to state to us his conviction that at the present time a woman is more safely delivered in the Rotunda Hospital than in her own home; nor is this a solitary fact, for Kehrer has made a similar statement as regards the other lying-in hospitals in Europe. This is a result of scientific midwifery, founded upon the teachings of Semmelweis, of which our predecessors never dreamt. It is one which could only be attained, and can only be maintained, by constant and unremitting attention to the minutest details, and therefore it reflects upon those who manage such institutions the greater credit and honour. But this statement, if true—and I have no doubt that it is so—has its dark side for us who practise in private houses. When we remember that the causes which have been always assigned for the larger mortality in hospitals, such as the excessive number of primiparæ, of unmarried women, and of difficult and dangerous cases, still obtain, we should never allow our results to be worse than theirs; and we must endeavour that in future they shall not be so. But this can only be done as has been done in the case of the hospitals—firstly, we must know the danger, and for this purpose we require much fuller and better statistics than any we at present possess. It is only by realising the ever-present danger that we can constantly guard against it. In this Section we must again and again warn those who undertake the care of parturient women, that to fail to use those means which science has placed at their disposal for the prevention of disease is criminal neglect. Is the danger less here than in general surgical practice? No, but much greater. Precautions should, therefore, be more strictly carried out. *“Who would not give a little to prevent what all would give a thousand worlds to cure?”* It might be objected, that the views of Semmelweis are by no means universally admitted as explaining in all cases the source of puerperal blood-poisoning. This objection is, however, quite beside the point; it does not matter, so far as our duty is concerned, whether infection from without be the only cause of fever or not. So long as it is a cause we must guard against it, no matter how superfluous in many cases such precautions may appear to be. You may rest assured that faithfulness in details will save your patients' lives, and that neglect will sooner or later bring upon you the punishment of standing, a helpless

spectator, to watch the fatal course of that disease which, perhaps, an accusing conscience whispers, might have been averted. Fritsch, that distinguished gynecologist, when writing on this subject, exclaimed—"How gladly would I forego all success in operative gynecology for the assurance that in teaching antiseptics I had instilled into my pupils fidelity to duty and humanity."

And now I have to thank you for the great honour you have conferred upon me—one of which any obstetrician might well be proud. It is a position which I accept with much diffidence, when I remember many of the great men who held it before me; and I regret I cannot formulate in words the feelings of which I am conscious.

OPERATION FOR PROSTATIC RETENTION OF URINE.

DR. HUNTER M'GUIRE, of Richmond, Va., has devised an operation for prostatic retention of urine, the peculiarity of which principally consists in the formation of a sinus from the wound in the viscus to that in the skin, which he effects as follows:—After an ordinary supra-pubic cystotomy he stitches the cutaneous wound from the pubes up to within a short distance of its superior extremity. Now, as he opens the viscus on a level with the superior border of the pubes, a sinus, usually three or four inches long, is formed, and through this the urine, in process of time, comes to be ejected, without inconvenience to the patient. The cases reported are very successful.—*Virginia Medical Monthly*, Vol. XV., No. 7.

SPONTANEOUS AMPUTATION.

DR. W. F. THORNTON, Nicaragua, C. A., reports a case of spontaneous amputation following the bite of a venomous snake (tomagar). The patient was a young man, twenty-two years of age. "The leg began to swell at once (after the bite), and in eighteen hours the swelling had extended to the abdomen. In thirty hours the entire right side, from the toes to the top of the head, was swollen and black." In a week's time a line of demarcation showed itself in the position of the wound, and three months afterwards separation of the leg, below the knee, was complete.—*St. Louis Medical and Surgical Journal*, Vol. LV., No. 1.

SALOL IN DYSENTERY.

DR. W. P. NICHOLSON, Atlanta, Ga. (*Virginia Medical Monthly*, Vol. XV., No. 7), reports that salol in five-grain doses has given him the most satisfactory results in dysentery and the diarrhoea accompanying typhoid fever.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

SOME PERIODICALS.

1. *The Bristol Medico-Chirurgical Journal: a Quarterly Journal of the Medical Sciences for the West of England and South Wales.* Published under the auspices of the Bristol Medico-Chirurgical Society. Bristol: J. W. Arrowsmith. June, 1888.
2. *Edinburgh Medical Journal: combining the Monthly Journal of Medicine and the Edinburgh Medical and Surgical Journal.* Edinburgh: Oliver and Boyd. Aug., 1888.
3. *Canada Medical and Surgical Journal.* Montreal. Jan.—June, 1888.
4. *The Montreal Medical Journal: a Review of Medicine, Surgery, and Obstetrics, and Chronicle of Hospital Practice.* Montreal. July—Aug., 1888.
5. *The Saint Louis Medical and Surgical Journal.* Jan.—May, 1888.
6. *The Australasian Medical Gazette: the accredited Organ of all the principal Medical Societies in Australia and New Zealand.* Sydney. Feb.—May, 1888.
7. *The Medical Record: a Weekly Journal of Medicine and Surgery.* New York. Jan.—June, 1888.
8. *The New York Medical Journal: a Weekly Review of Medicine.* April 14, 1888.
9. *The Medical News: a Weekly Medical Journal.* Philadelphia. March 17, 1888.

IN our May number of last year we noticed seventeen medical periodicals—American, Asian, and European. In the following pages we shall give a brief account of nine others; and also select from the files of those previously reviewed a few items which appear likely to interest or instruct our readers.

1. The *Bristol Medico-Chirurgical Journal* is the organ and Proceedings of the local Medico-Chirurgical Society. It strikes us that the jingling motto which has been selected—

“Scire est nescire, nisi id me
Scire alius sciret”—

has been somewhat misapprehended, the true object of publication being that others should know as well as ourselves, not that others should know that we know. However that may be, the periodical is creditable to Bristol in every way, and is entering upon its sixth year. The first paper in the issue before us deals with a subject which attracted attention at the recent meeting of the British Medical Association—the operation of intubation of the larynx, recommended and practised by Dr. O'Dwyer, of New York, as a substitute for tracheotomy. From this paper by Mr. Dacre we learn that the operation was introduced by Bouchut in 1858, but was so heartily condemned by a Committee headed by Trousseau that it sank at once. In 1880 Macewen published cases in which urgent dyspnoea was relieved by the insertion of a catheter in the larynx, and other cases of the kind have since been recorded; but to Dr. O'Dwyer appears to be due the credit of establishing the procedure upon a firm basis. The method will be found fully described in Mr. Dacre's paper. The following table (copied from a communication to the International Medical Congress of Washington, by Stern, of Philadelphia) gives the percentages of recoveries, at various ages, after intubation and after tracheotomy:—

	Intubation	Tracheotomy
Under 2 years	15·0	3·0
Between 2 and 2½	24·0	12·0
“ 2½ „ 3½	28·7	17·0
“ 3½ „ 4½	33·7	30·0
“ 4½ „ 5½	28·3	35·0
Above 5½	37·3	39·5

It will be observed that under the age of five years intubation has the advantage; over that age, tracheotomy. The deadly dulness, which is the sin which doth so easily beset every medical periodical (except, of course, our own), is relieved by a page or two of “scraps picked up by the Assistant Editor.”

2. The *Edinburgh Medical Journal* is too old and too worthy a representative of a distinguished school, and too well known to the profession to bear commendation from us. It has lived for more

than 33 years, and its natural force is not abated. The number now before us contains an interesting and sympathetic obituary notice of Dr. John Milner Fothergill. Born in Westmoreland, in 1841, he studied in Edinburgh, settled in London in 1872, and died at the early age of 47. *Multis ille bonis flebilis occidet.*

3. The final number of the *Canada Medical and Surgical Journal* is now before us. It has not died but undergone metempsychosis, and lives again as the *Montreal Medical Journal*—increased in size from 64 to 80 pages, and reduced in annual subscription from three dollars to two. "Vol. XVI., Nos. XI., XII.," which closes the old series, in its "retrospect of surgery," by Dr. F. J. Shepherd, Professor of Anatomy and Lecturer on Operative Surgery in the M'Gill University, gives an excellent *resumé* of the procedures practised for the radical cure of hernia. We observe, also, a gleam of irreverent merriment at our excellent contemporary, *The Lancet*, which, in its summary of advances in therapeutics in 1887, expresses a belief that olive oil, in very large doses, "may be found of value" in removing gallstones:—

"In the *Canada Lancet*, about five years ago, the whole matter was fully discussed, and as we thought at the time, settled. The suffering patient, the oil, the downpour of gallstones, the delight of the doctor, the rush to print, the discovery that swans were geese and gallstones soap, are all described in that veracious chronicle of the period.

"The question seems to be finally settled by D. W. Prentiss, in the *Philadelphia Medical News*, in an article entitled "Gallstones or Soap?" He describes cases in which relief to symptoms really did follow the administration of oil. The masses passed were subjected to careful chemical analysis at the hands of Professor Wiley, chemist, of the Agricultural Department, who furnished, it is believed, the only analysis of these concretions yet published. 'On reaching me the whole had melted to a viscous mass resembling soft soap. On examination it proved to be a true soap, easily soluble in alcohol, yielding fatty acids, insoluble in water on treatment with an acid. . . . The chief part of the alkali was soda. This is an interesting case, showing the complete saponification of a large quantity of oil by the pancreatic juice and bile, and the passage of a greater quantity of soap thereby formed, unabsorbed, through the alimentary canal.' Soap or no soap, the patients in these cases all appear to have had their symptoms relieved."

The Dominion of Canada now maintains eight medical periodicals.

4. Two numbers of the *Montreal Medical Journal* are before us, and promise well. In one of them we observe a paper by Dr. Harvie, of Troy, N.Y., advocating intubation of the larynx, but reporting that in his own ten cases only two recovered: "seven perishing before the end of the third day, the eighth living until the fifth day, and twenty-four hours after removal of the tube, with no return of the laryngeal obstruction, the patient perishing from broncho-pneumonia." This is not encouraging, even though "in every instance, without exception, the parents of children have expressed themselves to the effect that the operation was a most humane proceeding." The proceedings of the Montreal Medico-Chirurgical Society are here recorded.

5. The *St. Louis Medical and Surgical Journal*, published monthly, was established in 1843, and shows no sign of abated vigour. It gives 64 octavo pages of matter every month for an annual subscription of two dollars. It is thoroughly well edited, and there is a sprightliness of tone about it which relieves the solemnity almost inseparable from medical literature. If we were to suggest a motto it would be:—

"Ridentem dicere verum,
Quid vetat?"

We might give many illustrations of not unpleasing sportiveness from the 54th volume, which we have been studying with great advantage to ourselves; but we must be content with two. Our readers may remember the cannon-ball treatment for constipation, recommended not long since by a French physician, Dr. Sahli. The patient is to lie on his back and roll a cannon-ball about over his abdomen. A sufferer asks where he is to get a cannon-ball, as druggists do not keep iron in this form in stock. Until the remedy is generally adopted, and druggists are prepared to meet demands, it is suggested that "those desirous of testing the method can try boarding-house biscuits or similar hard and heavy agents."

But let us pass from "gay to grave." Under the title of the "Farny Suture" we come upon a suggestion for closing wounds; convenient, and applicable to cases unattended by free discharge. It consists "essentially of attaching a piece of adhesive plaster to each lip of the wound, and passing the suture from edge to edge of these, after the manner of a shoe or corset lacing." No novelty is claimed for this practice—except, indeed, by Mr. Farny, who appropriated and patented it! In the March number (p. 161)

there is an account of the new and promising local anæsthetic, the "red drug" of the West Coast of Africa—the inspissated juice of the *Erythroleum (sic) judiciale*—deriving the specific name from its use in trials by ordeal. The accused person is compelled to drink an infusion of the drug. If he has the good fortune to vomit immediately he is innocent; if not, stones and clubs complete the judicial proceedings. It is pronounced to be "a local anæsthetic of overwhelming intensity, and destined to throw cocaine entirely into the shade."

Leprosy is attracting much attention now, of which an article in the recent *Nineteenth Century* is symptomatic. American periodicals show that the disease is forcing itself upon the notice of physicians in the New World also. In this Journal for May (p. 270), Dr. Ohmann-Dumesnil reports a case of "indigenous leprosy." The patient, as well as her grandparents, was American-born. "The most careful questioning, the most rigid cross-examination, did not elicit any fact pointing to her having come in contact with any person affected with the disease, or of her having handled any clothing belonging to a leper. She had not travelled in any locality where lepers are known to abide." The author adds: "It could hardly be possible that the disease should have arisen *de novo*." He is of opinion that leprosy is *not* increasing in America. As this physician's opinion is of great weight in a question of this kind, we give his views upon the communicability of leprosy in full:—

"The question as to whether leprosy is contagious is one of great importance, and one upon which much has been written. That the arguments derived from clinical observation alone have not been satisfactory is fully evidenced by the fact that neither side of the question has yet made converts to the views of the other. Personally I do not regard leprosy contagious, any more so than syphilis or phthisis, and on account of the same reasons.

"On the other hand, there is no doubt whatever that it is an infectious disease; that it is inoculable, and that its effects are almost sure to follow an inoculation that is properly made.

"The labors of the pathologists of late years have demonstrated most conclusively that leprosy is a disease dependent upon a micro-organism. This organism is the bacillus of leprosy, and, unless it be introduced in the human organism, leprosy will not be produced. Now, for this purpose, two conditions are necessary. In the first place, the leper must have some solution of continuity of texture present in order to give free outlet to the bacilli, as these organisms are situated in the tissues. In

the second place, the individual who is to be the subject of leprosy must have some solution of continuity of tissues in order to admit the bacilli, otherwise he cannot acquire the disease. This being the case, it is not difficult to understand how the disease may have been transmitted in some cases and not in others. But to argue that it is contagious and to such a degree as to require isolation, is not logical, if we carefully examine the premises. That the isolation of lepers practically stamped out the disease in Europe is true; and that where it is endemic such measures should be pursued is equally true. But, in isolated cases, all that is necessary is to exercise a careful supervision and to give full directions to those surrounding the patient, in regard to contact and proper disinfection. Moreover, in my mind, there is never any danger until ulceration or some other similar feature appears."

Before concluding our notice we cannot forbear mentioning, in connection with this subject, an amusing instance of a physician's being "hoist with his own petard." Dr. Van Harlingen reported three cases of leprosy to the Philadelphia County Medical Society, and, in his paper, expressed his belief that the disease is contagious. Whereupon the Board of Health fined him a hundred dollars for having failed to report to it cases of contagious disease! His *confrères* subscribed and paid the fine.

6. The *Australasian Medical Gazette* claims to have the largest circulation of any medical journal in the great Southern World, and is the "accredited organ" of all the principal Medical Societies. It is edited by the Hon. John Mildred Creed, M.L.C., L.R.C.P., M.R.C.S.E., &c., and published monthly at Sydney, and has completed its seventh year. Its seventh volume offers little of special interest—Pasteur's experiment for the destruction of superfluous rabbits being incomplete at the time of its publication—or, rather, being scarcely begun. We observe, in the monthly mortality reports for all these colonies, that deaths from phthisis bear a considerable proportion to the whole, except in New Zealand. Leprosy exists, but the central Board of Health of Victoria reports that it is not spreading there. It, so far, affects only Chinese. At Ballarat, where special provision is made for the seclusion and treatment of lepers, 19 cases—all Chinamen—have been treated in 25 years. The number of insane is increasing in New South Wales, having more than doubled in 10 years. The proportion is "1 in 369, or 2·71 per 1,000; the corresponding figure for England being "1 in 349, or 2·86 per 1,000." In Dr. Duncan Macgregor's Report on New

Zealand Lunatic Asylums the proportions of insane to general population are stated to be as follows:—New Zealand (including Maoris), 1 in 381, or 2·63 per 1,000; Victoria, 1 in 306, or 3·27 per 1,000; New South Wales, 1 in 375, or 2·67 per 1000; South Australia, 1 in 439, or 2·28 per 1,000; Queensland, 1 in 418, or 2·39 per 1,000; England and Wales, 1 in 348, or 2·87 per 1,000; Scotland, 1 in 420, or 2·38 per 1,000.

7. The *New York Medical Record* is a very old friend, whom we never see without pleasure and instruction. For more than seventeen years this weekly paper has ably represented New York medicine—though, indeed, it draws contributions from all parts of the Union. We have glanced over the issues of the last six months or so, in search of information on leprosy in America, but without success. We found some remarks and statements about the negro, considered from the medical point of view, which appeared to us worth noting. It would seem that the fears which have been felt, that the negro population in the Southern States was increasing more rapidly than the whites, are groundless. Dr. Corson, of Savannah, in a lecture delivered last year, maintains that one result of emancipation is a tendency to the extinction of the negro as a separate race in America.. Crowded city life, insanitary conditions, and “excesses of all kinds,” are doing evil work among the black population. Its immunity from malarious diseases and from yellow fever has disappeared, “possibly as a consequence of the continually increasing admixture of white blood.” Pulmonary phthisis, from which the negro of slavery days was almost free, now destroys twice as large a proportion of blacks as of whites. Infant mortality is excessive. In some respects the coloured races enjoy superiority over the whites. They bear injuries and operations better. Carcinoma is very rare among them; so are congenital deformities, though rickets is very common. Specific genito-urinary affections are common enough. Ear diseases are comparatively fewer. Finally, the negro rarely suffers from trachoma.

8. The *New York Medical Journal*, also a weekly, covers the same ground as the *Record*, its elder sister by eight years or more. In the number now before us appears a paper on nephro-lithotomy, read before the New York Academy of Medicine by Dr. J. M'Cosh, in which he records a successful case, and gives statistics of the

operation, introduced, he says, eight years ago, by "Morris of London," "for the extraction of a stone from a kidney the secreting substance of which had not become disorganised, and prior to the conversion of its pelvis into an abscess-cavity." Gross, in 1886, published 34 cases, with 3 deaths—8·82 per cent. Dr. McCosh collected 18 additional cases, with 3 deaths. Taking the two series together, we obtain a mortality of 11·54 per cent. The death-rate in nephrotomy for calculous pyelitis is 33·00, according to Gross; and in lumbar nephrectomy 36·93. Gross collected 29 cases of exploratory operations in which no calculus was formed in the kidney; and in none did death follow. The author of the paper adds 5, with 2 deaths; but "autopsy revealed in both the presence of renal calculus not discovered at time of operation." He infers the safety of such exploratory operations.

9. The *Medical News* is a weekly journal, similar in character and contents to the two periodicals last noticed, but published in Philadelphia. Glancing over one of its numbers, we obtained a peep at the state of medical education in some parts of the United States; and also an instance of such hospital mismanagement as we should have thought impossible in a leading city of the Union. A compulsory *fourth* year of medical study is still "only a matter of time with the great schools of medicine," we are told. In 1881, Harvard University made a fourth year optional, giving a special *cum laude* degree to students who took the extra course. Three years' study is considered sufficient for qualification in the highest medical schools; but in others a third year is merely optional. It was only in 1871–2 that even Harvard made three nine-month sessions compulsory! In the last Report of the Department of Charities and Correction, the Board of Directors call the attention of the City Councils to the accommodation in the Philadelphia Hospital, which appears to be an alms-house as well. The "convalescents," it seems, "are now herded in attics in a manner disgraceful to any civilised community." Let the Report speak: "In these attics are congregated so many individuals, that the two thousand cubic feet of space which, according to the best authorities, is essential to each, is reduced to an average of about three hundred feet. When the beds are prepared for the night, there is barely room enough left to enable one to walk from one end of the room to another. Many of the patients are compelled to sleep two in a bed!"

We have already welcomed the *Brooklyn Medical Journal*, one of the most recent additions to the ranks of medical journalism. In its first number (January, 1888), in justifying its own birth, it gives some figures showing how abundantly the United States are supplied with professional periodicals. More than 150 are published in the Union. New York (with a population of a million and a half) maintains 21, devoted entirely to medicine and surgery, besides 6 sanitary, and several pharmaceutical. Chicago publishes 8; Cincinnati, 4; St. Louis, with a population of less than 500,000, 9. Why should not Brooklyn, with its 750,000 inhabitants, have one for itself? In another sign of medical activity she is not backward. Brooklyn maintains six medical societies.

In a number of the *Sacramento Medical Times* we note a case of indigenous leprosy. The patient was a mulatto, aged sixty, a native of Virginia, but resident in California since 1852. He had never been out of the United States, nor out of his own city (Marysville) for seventeen years. There was no history of syphilis. *A propos* of statistics, showing decline in marriage proportions in England and other European countries, recently published in the *Pall Mall Gazette*, some figures relating to Sacramento County, Cal., are given, showing an even more decided decline there. The population of 1877, 22,500, had increased in 1887 to 50,000. The number of marriages in the county in each of those ten years was—299, 315, 243, 330, 358, 314, 324, 370, 347, 310. The marriage-rate *per mille*, which was 13·3 in 1877, was 6·2 in 1887.

In connection with medical education in the United States, we see in the Philadelphia *Polyclinic* that a College of high reputation, the Jefferson, has only now made a *third* year of medical study compulsory: the obligation to begin in 1890. In another Philadelphia journal, the *Medical and Surgical Reporter*, Dr. Crandall, of Sterling, Ill., gives a brief note on an epidemic of cholera which occurred at Fort Dodge, Kansas, in 1867. The fort was occupied by infantry, cavalry, and many civilians. A detachment of coloured troops, moving to New Mexico, which had suffered from cholera *en route*, encamped near the fort, and lost a man in camp. The second day after the detachment had passed on, "a man who had visited the camp was taken down with cholera, and in less than a week we had a dozen cases on hand." We do not dwell on the obvious fact of *importation* in this case. We notice the report because it illustrates the apparent capriciousness of the disease. The infantry, the civilians in the fort, and others living on ranches

within 75 miles of the fort, were attacked, but the troop of cavalry, occupying quarters similar and close to the infantry, enjoyed complete exemption. We give Dr. Crandall's "true explanation" of this immunity for what it may be worth:—"At the time when the cholera epidemic prevailed the post was not completed, and the men slept in a stone stable with their horses; and it seems to me reasonable to believe that the cholera-germ was neutralised or rendered inert by the action of the ammoniacal gas arising from the decomposed urine of the horses."

We extract the following statistical information upon medical education in the United States from the President's (Dr. A. Y. P. Garnett) Address at the 39th Annual Meeting of the American Medical Association, held at Cincinnati on the 8th of May of last year. The proceedings are fully reported in the *Journal* of the Association. The figures, &c., were supplied by the United States Commissioner of Education in a letter to the President:—

"Total number of Medical Schools in the United States, 126; of these 95 are regular, 11 are 'eclectic,' 13 are 'homeopathic,' 3 are 'physio-medical,' and 4 are too indefinite for accurate description.

"Of these, 2 regular, 1 'eclectic,' 1 'physio-medical,' and 4 'indefinite' schools are not recognised by this Bureau, by State boards of health, by medical licensing boards, &c. Four other schools have been established or organised so recently that they reported no students or graduates for the year 1885-86. There remain 89 regular, 10 'eclectic,' 13 'homeopathic,' and 2 'physio-medical' schools, from which statistics were obtained and tabulated in another part of that letter.

"Proceeding thereto, the list of Medical Schools on pages 5-11 showed that 63 regular, 2 'eclectic,' and 4 'homeopathic' schools admitted male students only; that 1 'homeopathic' and 4 regular schools admitted female students only; that 19 regular, 8 'eclectic,' 8 'homeopathic,' and 2 'physio-medical' schools admitted both male and female students; and that 9 other schools, all regular, admitted coloured pupils, one of these admitting both sexes and both races. As a whole, 70 schools admitted males only, 5 women only, 38 both sexes, and 1 everybody of suitable age.

"Studying this table further, we find two methods of instruction prevailing. One, the older, requires a student to attend substantially the same course of lectures twice before his examination for a degree; the other requires him to attend three distinct and graded courses of lectures before his final examination. Of the 114 reporting schools, 1 requires only 1 course of lectures; 86 require 2 courses; these 87 I group together as following the older, or *repetition*, method; 26 schools require 3 graded courses, and 1 school 4 such courses; these 27 I group together as pre-

scribing the newer, or *graded*, method, with the following result as regards numbers :—

Designations	Graded method			Repetition method			All		
	Schools	Students	Graduates	Schools	Students	Graduates	Schools	Students	Graduates
Regular - -	21	1,889	383	68	7,752	2,826	89	9,591	3,209
Eclectic - -	1	24	14	9	578	187	10	602	201
Homeopathic -	5	314	104	8	748	351	13	1,062	455
Physio-medical -	0	0	0	2	47	28	2	47	28
All designations -	27	2,177	501	87	9,125	3,392	114	11,302	3,893

“ This tabular summary is not introduced in order to discuss it, but in order to furnish a basis of *concrete* numbers, upon which the *percentage* numbers given below may be verified.

“ The percentages are calculated so as to show for each kind of medical school the proportion preferring each of the two methods. I give first those relating to the ‘ *graded* ’ method :—

Designations	Percentage of —		
	Schools	Students	Graduates
Homeopathic - - - -	38·5	29·6	22·9
Regular - - - - -	23·6	19·2	11·9
Eclectic - - - - -	10·0	4·0	7·0
Physio-medical - - - -	0	0	0
All designations - -	23·7	19·3	12·9

“ Next those percentages relating to the ‘ *repetition* ’ method :—

Designations	Percentage of —		
	Schools	Students	Graduates
Eclectic - - - - -	90·0	96·0	98·0
Regular - - - - -	76·4	80·8	88·1
Homeopathic - - - -	61·5	70·4	77·1
All designations - -	76·8	80·7	87·1

"The foregoing percentages are instructive in two ways. We may compare the proportion designated 'regular' with the others in its own group, or with the proportion similarly named in the other group.

"The percentages of 'regular' schools, students, and graduates following the 'graded' method of instruction were less than the corresponding homeopathic percentages in that group. This would indicate that the regular schools, as a whole, were less careful in the *method* of their instruction, so far as the grading of studies is concerned. Is this a sign of less care in other ways? Does it explain any part of the success of well-educated homeopathic physicians in modern times? I do not draw this as a conclusion, but submit it as a query.

"Upon comparing the percentages designated 'regular' in both groups, we see that those in the 'repetition' group exceed those in the 'graded' group 52·8 as to schools,

61·6 as to students,

76·2 as to graduates.

"This indicates that regular schools following the older, two-course, or 'repetition' method admit students more readily, and confer degrees more copiously, than regular schools prescribing 'graded' courses of instruction. Do the schools in the 'repetition' group admit and graduate more readily *because* they have, as a whole, a lower ideal? I do not assert this. I ask the question.

"Returning now to the tabular summary on page 2 of this letter, I extract and summarise yet further the statistics relating to 'regular' medical education, and give percentages of graduates to students in each group, as follows :—

Method of Instruction	Number of Students	Number of Graduates	Per cent. of Graduates to Students
21 'graded' colleges - -	1,839	383	20·8
68 'repetition' colleges - -	7,752	2,826	36·4
89 All methods - - -	9,591	3,209	34·5

"This indicates a possibility that the requirements for graduation from the 21 colleges prescribing a graded course are more severe than those of the larger group. If the per cent. of graduates from the 'repetition' method colleges had been 20·8 instead of 36·4, *they would have graduated only 1,612, instead of 2,826.* On the other hand, if the 'graded' method colleges had graduated as many in proportion, 36·4 per cent., as the others, they would have granted diplomas to 669, instead of 383. If all these schools had graduated 20·8 per cent. of their students, those graduates would have numbered 1,995; if they had graduated 34·5 per

cent., the graduates would have numbered 3,495. They actually graduated 3,209, or 34·5 per cent."

The lecturer adds that in 1888, taking the population of the United States at 61,420,000, there is one medical practitioner to 580 of population. In Washington the proportion is 1 to 485. We cannot forbear adding from the same *Journal* an instance of the results of unrestricted medical "education" and medical practice. One "Dr." Dayton got into trouble in Albany, for slaying Mary Willett. He pleaded that he was a graduate of the "American Health College, Cincinnati," which teaches the "vitapathic system," warranted to cure all diseases of body and soul. Dayton's diploma certified that he had been fully instructed, and was amply qualified. It authorised him to treat all physical and mental diseases (and to receive compensation), and "in virtue of our religious organisation and second incorporation, we also constitute and ordain him minister of the gospel of life and authorise him to preach and to solemnise marriages according to law, to attend funerals, and to lawfully perform all ministerial offices; and by these presents we do fully constitute him doctor of health and minister of life, this, &c., &c."

We conclude our discursive notice, which has run to an *almost* (let us hope !) intolerable length, with mention of a paper read before the Paris Académie de Médecine by M. Worms, on Saccharin, reported in the *Gazette Hebdomadaire de Médecine et de Chirurgie*. It was supposed that the new drug would be found useful in the treatment of diabetes. The author's trials of it were not encouraging, but his experiments were confined to four patients. To these he gave a centigram daily, and only one was able to continue it for two months without ill effects. The other three were obliged to discontinue it after a fortnight, suffering from anorexia and other peptic troubles. In one case the treatment was resumed, with similar results. It is still too soon to decide upon the therapeutical value of saccharin.

Enterostomy for Acute Intestinal Obstruction. By B. FARQUHAR CURTIS, M.D. New York: Throne's Printing Co. 1888.

IN this short paper the results of laparotomy and enterostomy for acute intestinal obstruction are compared, showing that the latter operation (the formation of an artificial anus in small or large

intestine) is, under certain conditions, preferable to free opening of the abdomen and exploration. When great distension of the bowel is present, or when the patient is so exhausted that the major operation would be likely to produce fatal collapse, the short operation, which gives immediate and free exit to accumulated fæces, should be performed. Dr. Curtis concludes his paper by the following comparison, based on a very careful and exhaustive study of this subject :—"The mortality for laparotomy is 68·9 per cent.; for enterostomy, 48·7. In enterostomy, 4·8 per cent. died because operation did not relieve the constriction; in laparotomy, 5·8 per cent. Enterostomy restores the natural passage of fæces in 60 per cent.; laparotomy in 79 per cent." Dr. Curtis believes that enterostomy can be done without an anæsthetic, and he thinks it should be done early, and that, if necessary, when the patient's strength improves, laparotomy may be resorted to for the removal of the cause of obstruction, and to close the artificial anus. Enterostomy is of such wide application that he would consider it the most fitting operation in the vast majority of cases in which any delay in seeking relief has occurred and obstruction is complete.

Suggestions for a Plan of taking Notes of Medical Cases. Arranged by GEORGE F. DUFFEY, M.D., Dubl.; Fellow and Examiner, King and Queen's College of Physicians; Physician to the City of Dublin Hospital, &c. Entered at Stationers' Hall. Dublin: Fannin & Co. London: Baillière, Tindall, & Cox. Second Edition. 1888.

DR. DUFFEY has succeeded in condensing into a singularly small space a very comprehensive scheme of note-taking in medical cases; and he has placed all students of medicine under an obligation to him by thus helping them to observe such cases with accuracy and in detail.

A special feature in Dr. Duffey's "Plan" is a table for daily notes of symptoms in cases of the Continued or Eruptive Fevers. It is based on the headings in Murchison's treatise on the "Continued Fevers of Great Britain," and will be found most useful by case-takers for the fourth Professional Examination under the Conjoint Scheme of the Royal Colleges, and for the Examinations for the Degree of M.B. in the University of Dublin and the Royal University of Ireland. The student is recommended to map out

in his case-book, by means of outline figures, the exact position in which physical signs or abnormal conditions exist, and two specimens of such outline figures are given as a guide. We heartily commend the author's zeal as a clinical teacher, and wish his "Plan" all success.

JAN 17 1889

The A B C Medical Diary and Visiting List 1889. London: Burroughs, Wellcome, & Co.

THIS diary is published annually by the great firm of Snow Hill Buildings, London, and includes Messrs. Whiting & Company's excellent "Pocket A B C Materia Medica and Modern Pharmacopœia." This contains a list of modern remedies and improved dietetic agents, with their action and uses, as well as directions for the preparation of foods intended for invalids and infants, short articles on hypodermic medication and kindred subjects, with tables and other matters of interest to physicians and surgeons.

The diary is neatly and substantially bound in leather, and costs only two shillings, post free. We would suggest that in future issues the date of the year for which the diary is intended should be embossed in gilt figures on the outside of the cover.

The Pathology and Treatment of Displacements of the Uterus. By Dr. B. S. SCHULTZE, Professor of Gynæcology; Director of the Lying-in Institution, and of the Gynæcological Clinic, in Jena. Translated from the German by JAMESON J. MACAN, M.A., M.R.C.S. Edited by ARTHUR V. MACAN, M.B., M.Ch.; Master of the Rotunda Hospital, Dublin. London: H. K. Lewis. 1888. 8vo.

THE original work, of which the volume before us is a translation, was published some six years ago. The author, in his preface, says:—"The object of the present treatise will be attained if the following pages contribute to make the displacements of the uterus better known, and more frequently recognised and justly appreciated in ordinary practice, and if they give my colleagues more confidence in the successful treatment of these affections."

While the editor, in his preface, states that the views put forward in the original German edition met with the most violent opposition, adverse criticism has, however, only tended to show how accurate the observations were on which such views were founded, and how

impossible it was not to admit the truth of the deductions drawn from them. The author has endeavoured to present the whole subject in a clear and concise way, with no fewer than one hundred and twenty illustrations drawn to a scale of one-third. The book, as a whole, leaves little to be desired, and the translation of his work will be welcomed alike by the medical and the gynæcological practitioner.

It is divided into two parts—a “general” and a “special.”

The first part is divided into four chapters. In the first of these the author describes at considerable length what he considers the normal position of the uterus, and no chapter of the work demands more attention, as this is the keynote of the whole matter treated of in the book.

Chapter II. is devoted to the definition, classification, and statistics of Displacements. He considers displacements only pathological when they are more or less permanent, and our nomenclature must be characterised by brevity and precision, and need not contain a complete definition in every name.

In chapter III. the symptoms and diagnosis of Displacements of the Uterus are fully discussed. The method of examination is to be made while the woman is lying on her back, on a sofa or any other couch of ordinary height, which is not too softly upholstered. The examination chairs may, in his opinion, be dispensed with. Examination with the sound, he thinks, ought to be seldom applied, as it is rarely needed by anyone who is well skilled in bimanual digital palpation.

In chapter IV. the anatomy, ætiology, and indications for treatment are considered.

In the second or special part, the various displacements of the uterus, and the ætiology, diagnosis, prognosis, and treatment of each disease, all receive attention. Certainly the best part of the work—and they are worked out in a masterly way—are the chapters on retroflexion, retroversion, and prolapse of the uterus. Here the author shows that he is a clinician of vast experience; but occasionally we are inclined to think that he expects too much from mere reposition of the uterus, and his results do not coincide with those obtained by other gynæcologists. Speaking of ectropion of the cervix, he considers that operative treatment is rarely required. In the treatment of retroflexion, having replaced the uterus bimanually, he prefers the figure of eight pessary, for he says of Hodges and Meyer's pessaries as being those in most general use

for the correction of retroflexion, one is not at all, and the other is only, under strict limitations adapted to keep the uterus in its normal position after reposition.

At the end of each chapter is a short summary, which has many advantages, and which might be well imitated in most of our ordinary English text-books. At the end of the work the author has added a most useful addendum under the title "Literature," which has been arranged, as far as possible, according to the chapters of the book.

We cannot speak too highly of the translation, and the way in which the editor has performed his work. The task of translator, considering some of the more abstruse points and the many technical terms, was by no means an easy one, and both translator and editor deserve great credit for presenting us with so readable and, at same time, so accurate a translation. The book is one which, we trust, will find many friends, and of which the author may well be proud.

British Pharmaceutical Conference. Unofficial Formulary. 1888.

London: J. & A. Churchill. 1888. Pp. 27 (interleaved).

IN August, 1886, the British Pharmaceutical Conference, at its annual meeting at Birmingham, appointed a Committee of ten of its members to prepare a Formulary of unofficial remedies. Of this Committee, Mr. William Martindale was the Chairman, and Mr. W. A. H. Naylor was the Secretary. The Committee published the result of their labours in 1887, and, having been entrusted with the bringing out of a new edition in 1888, have added 16 new formulæ to those contained in the first edition, besides substituting a new formula in the case of "Emulsio olei morrhuæ."

Such preparations as the elixirs of cascara sagrada and of saccharin, the syrups of hydrochlorate of apomorphin and butyl-chloral, and the tinctures of convallaria, eucalyptus, hydrastis, and strophanthus, cannot but prove of use to the medical practitioner, who in them will have at hand an elegant form for the prescribing of new and valuable remedies.

We notice one misprint on page 9, where "Elixir Cascara Sagrada" should read "Elixir Cascaræ Sagradæ." The book is interleaved for the purpose of note-taking.

PART III.

HALF-YEARLY REPORTS.

REPORT ON NERVOUS AND MENTAL DISEASE.*

By RINGROSE ATKINS, M.A., M.D.; Resident Medical Superintendent, District Lunatic Asylum, Waterford.

I.—INSANITY IN GENERAL.

Secondary Dementia.—At the annual meeting of the Medico-Psychological Association, held in Edinburgh in August last, Dr. T. S. Clouston chose this phase of mental disease as the subject of his Presidential Address. After an exhaustive consideration of the questions involved, he offered the following conclusions as points for discussion:—

1. Normal brain cortex differs enormously in different individuals in its inherent qualities and potentialities, these differences being in the most important points necessarily “functional.”

2. The strongest common clinical and psychological tendency of every form of mental disease is the tendency to end in dementia.

3. Dementia being a virtual death of the higher mental powers, all insanities, therefore, mean mind-death and social-death.

4. Dements constitute two-thirds of our insane population.

5. Forty out of every hundred of all new cases of insanity soon pass into secondary dementia, pure and simple, or mixed up with maniacal or delusional conditions.

6. The functional change that takes place in the brain cortex in secondary dementia is primarily and chiefly confined to the mind tissue, and is in fact a unique disease in nature with no pathological analogies whatever.

7. The problem of what secondary dementia means, and how it can be averted is the cardinal problem of psychiatry.

8. Mental disease may be defined as “a tendency to dementia.”

* The author of this Report, desirous that no contributions to the subject of Nervous and Mental Disease should remain unnoticed, will be glad to receive any publications which treat of it. If sent to the correspondents of the Journal they will be forwarded.

9. The constant association with demented alone tends to lower the mental tone of the staffs of asylums by the well-known law of the action of mind on mind.

10. Secondary dementia has as yet no sufficient pathological explanation.

11. It may be looked on as a reversion of type, as a failure of Nature's powers to complete her most organised and highest product, as a premature functional death of the mind tissue, or as a most beneficial result of the laws that bring a bad stock to an end.

12. Real secondary dementia may be so closely imitated by secondary stupor that only time and the effects of treatment can distinguish them. We may look on the primary maniacal attack as threatened dementia, and the secondary stupor as being a further stage towards it.

13. We have no reason to think that a brain which has a perfectly sound heredity can, by any series of bad conditions known to us, be made to exhibit typical secondary dementia.

14. The impressions through the senses from the outer world do not stimulate normally the cortex of a demented, though if the stimulant is very strong a certain response is obtained, but such a brain is incapable of providing such a stimulus by its own inherent working.

15. Dementia cannot be looked on as caused by the damage done to the mind tissue through the primary acute disturbance, for it often occurs without any acute primary stage, and its occurrence bears no definite relationship to the intensity or the duration of the primary attacks.

16. Most of the cases of chronic and delusional mania have also dementia superadded.

17. The pathological appearances, naked-eye and microscopic, found in the brain cortex in long-continued cases of dementia are capable of explanation on the theory of the degeneration and atrophy of long-disused tissues, or they may be the advanced stage of the pathological condition, which is the real cause of the dementia, but which in its early stage we cannot as yet recognise.

18. No merely vascular theory of dementia is tenable.

19. Typical secondary dementia is always hereditary, and its genesis can be traced through the stages of hyperactivity, hyperæsthesia, diminished inhibition, instability, melancholia, mania, and alternation in different generations or in members of the same generation affected in different degrees.

20. Pure and uncomplicated secondary dementia does not readily supervene on the insanities that occur after full development and before the period of decadence, such as puerperal and lactational insanities, or those resulting from overwork or emotional causes at that age.

21. Melancholia and alternating insanities, delusional and inhibitory insanities, are not the preliminary stages of secondary dementia nearly so frequently as maniacal attacks.

22. Almost all pure cases of secondary dementia will be found to have originated in the developmental (pubescent and adolescent) insanities.

23. Masturbation may be an element in the production of secondary dementia in some cases, but it is not a necessary or a constant cause.

24. Idiocy and congenital imbecility represent Nature's failures during brain growth; while secondary dementia is the typical failure during brain development.

25. Pure secondary dementia means that the organism has failed in its most highly organised structure and in its most important function, just at the point before full reproductive perfection should have been naturally reached.

26. Undue and unphysiological means, through a forcing-house mode of education during adolescence, without regard to the hereditary capacity and weaknesses of the organism, tend toward dementia.

27. The constant changes in each generation of modern civilised life, in the adaptation of the human organism to its environments, and the special efforts thus rendered necessary by the struggle for existence, tend towards dementia through the strain they put on the most delicate of all organised tissues.

28. Adolescent insanity ending in secondary dementia may be regarded as the typical form of mental disease.

29. Dementia would have seemed a more natural sequence of the insanities of decadence (climacteric and senile) than of any others, for in them it would be a mere anticipation of the reproductive and mental death that has physiologically begun.

30. The lower animals, while subject to attacks analogous to melancholia and mania, are not subject to any state corresponding to secondary dementia before the senile period.

31. By prophylaxis in some cases and by right treatment of the primary attack in others, dementia may be averted, but in many cases it is inevitable through the bad heredity of the individual.

The Pathology of Delusional Insanity.—At the meeting of the British Medical Association in Glasgow, Dr. J. Wigglesworth read a paper on this subject before the Section of Psychology. He sums up his views thus:—"In the affection known as monomania or delusional insanity, the hallucinations (or illusions) are primary and the delusions secondary, this pathological formation of ideas proceeding on the same lines as the normal physiological process. This seems to indicate that the starting-point of the disease must be in those nervous structures, derangement of which is capable of giving rise to simple uncomplicated hallucinations—to wit, the peripheral nervous system and lower cerebral centres. The complete preservation of the reasoning also negatives the idea that the disease at the outset can have seized upon the highest centres of mind."

That disease of the peripheral nervous system is capable of producing a delusional insanity is shown by certain cases of locomotor ataxy, in which it is not permissible to doubt the relation of cause and effect. It does not seem an unfair inference that in other cases in which the relation between cause and effect is not so manifest, nevertheless may own substantially the same pathology.

Imbecility with Insanity.—Dr. Henry M. Hurd, of the Eastern Michigan Asylum at Pontiac, recently contributed a paper on this subject to the Association of American Superintendents of Asylums for the Insane. As a result of his inquiries into cases of this kind the following conclusions may be given:—

1. As a rule, the lowest grade of imbeciles are irritable and impulsive, especially when annoyed, but they are not subject to delusions, nor can they properly be considered insane.

2. In the next higher grade of imbecility an actual insanity is developed, which assumes the form of impulsive acts, morbid propensities, and even acts of suicidal or homicidal intent, without delusions and without sustained mental disturbance.

3. A still higher grade of imbecility exists, in which attacks of acute and recurrent mania, simple melancholia, and melancholia with systematised delusions, may be present. These attacks run about the same course as in persons who possess a normal brain.

4. In cases of moral insanity, so called, or of imbecility with moral perversion, there is always present from the age of puberty a well-marked mental deficiency of a progressive character, which goes on to confirmed dementia. The apparent moral defect is in reality a mental one.

5. The determining causes of the development of insanity among imbeciles are generally physiological epochs or crises, or vicious practices acting upon a neurotic organisation, which has been directly inherited from an insane or dissolute parent.—(*American Journal of Insanity*).

Race and Insanity.—Drs. H. M. Bannister and L. Hektoen contribute to the *American Journal of Insanity* a paper on this subject. From a statistical research into the registers of many of the great hospitals for the insane in America, they consider that the following deductions are permissible:—

1. That in the white race the depressive types of mental disease are most frequent in the Germanic and Scandinavian peoples, and least so in the Celts; the reverse of this appears to be the case as to the exalted or maniacal types.

2. That general paralysis is not a disorder to which any race is immune, but one that depends upon causes independent of racial or national peculiarities.

3. That the well-known fact that insanity is much more common amongst the foreign-born than amongst natives in this country (America), is not to any great extent explainable by the shipment of the defective classes of Europe to America. The “cranks,” and epileptics, and other neurotic individuals, do not appear to be represented in due proportion even amongst the foreigners in our asylums. The cause of the excess of foreign-born insane in this country is, it seems probable, to be looked for mainly in the fact that, supposing the immigration to include only its proportion of persons below the average of mental strength and flexibility, the change of scene and associations, the difficulty of beginning life among them, disappointments, home-sickness, and all the other accidents and trials that befall the new-comers, together contribute to break down mentally a vast number who, under other circumstances, would have escaped, and largely contribute to the mass of insanity in this country.

II.—NEURO-ANATOMY AND PHYSIOLOGY.

Notes on the Ascending Antero-Lateral Tract.—Dr. Tooth, in the St. Bartholomew's Hospital Reports, describes a small tract in the antero-lateral region, or “mixed zone” (Flechsig), which was first recognised by Gowers, but which other observers have regarded as part of the cerebellar tract. Bechterew, and lately Sherrington, have shown that this tract is composed of fibres, which acquire

their medullary sheath at a definite time in the developing fœtus. The lesion in the case on which this note is founded consisted of a rapidly-growing sarcoma, involving the membranes and compressing the cord from the mid-dorsal to the mid-lumbar regions. That part of the cord involved in the tumour was disorganised and softened, as were also the lumbar and sacral regions. The sections were cut from the cervical region, which was in excellent preservation. The cord, after being cut into segments, was hardened in bichromate of potassium, and was then stained in the mass in Weigert's hæmatoxylin solution for four days. They were then washed and kept in ferrocyanide of potassium solution for four days. After careful washing, they were dehydrated and saturated with solid paraffin. Sections made in this way showed the degeneration very plainly. All the sections showed degeneration of the posterior median columns, and degeneration in the antero-lateral tracts. The latter degeneration could be traced up to a level with the lowest part of the olive. The author goes on to state that the ultimate fate of the antero-lateral tract is a point of considerable interest, more especially as there is every reason to believe that its fibres are concerned in the conduction of pain sensations. "One thing seems certain—viz., that these fibres do not pass to the cerebellum *via* the restiform body. What, then, becomes of them? There are two possible ways in which they may terminate. They may have passed into the central part of the medulla, and thus become lost in the mass of fibres forming the bulk of the formatio reticularis, or they may have become connected, fibre by fibre, with the numerous ganglion cells lying about in that part of the medulla, more especially with that group of them known as the nucleus lateralis. The nucleus lateralis is the remnant or upper termination of the lateral zone of the grey matter of the cord. If we accept as possible the conclusion that this tract is ultimately connected with the cells of the nucleus lateralis in the medulla, there is no reason why its fibres should not be received, from time to time, in its upward course into the cells of the lateral zone of the cord lower down. Thus, we have some sort of anatomical evidence that the grey matter of the cord is concerned in the conduction of pain sensations."

The Central Tracts of the Sensory Cranial Nerves.—Edinger has investigated the central tracts connecting the fifth, eighth, ninth, and tenth nerve nuclei with the 'tween brain, in fœtal specimens from cats, dogs, rabbits, calves, and apes. He follows the methods

of Flechsig into the domain of comparative anatomy, and the interesting results demonstrate the value of this method of investigation. Fibres which leave the nuclei of the sensory cranial nerves, cross to the opposite side of the medulla or pons, forming part of the transverse fibres of these parts, and on reaching the lemniscus and formatio-reticularis turn upwards to pass to the brain. They decussate with their fellows in the raphé, usually near to the area occupied by the posterior longitudinal bundle. It is thus evident that the nuclei of the sensory nerves, like the nuclei of the posterior columns of the cord, are connected with the opposite side of the formatio reticularis and lemniscus by decussating fibres. And the existence of a sensory tract for the cranial nerves in the lateral portion of the formatio reticularis and lemniscus is thus determined. The author claims that by this method tracts can be made out which cannot be distinguished from each other in human foetal brains, and the drawings which accompany the article demonstrate that the simple structure of the lower brains warrants this assertion.—(*Anatomischer Anzeiger*, No. 6, 1887. Abstracted in *Am. Journ. Nerv. and Ment. Dis.*)

The Topography of the Cerebral Cortex.—In the absence of a comprehensive monograph on the relation between the external surface of the head and the various encephalic regions, Victor Horsley records his personal experience (*Amer. Journ. Med. Sci.*), based on ten cases submitted to operation, in localising brain lesions, and determining the particular part of the skull and soft parts covering the focus of disease. The sulci of the brain are to be regarded as landmarks of functional areas, but not as boundaries of them, evidence of this being found in the localisation of the motor centres which lie on both sides of the fissure of Rolando. It is necessary, therefore, to find the position of certain convolutions, as well as of the fissures and sulci. The results of a long series of experiments upon monkeys, conducted by Horsley and Beevor, are made the ground for numerous interesting statements regarding the extent of the motor areas upon the cortex. The view is urged that in any given part of the cortex, as minute as can be examined experimentally, there is represented a definite movement or combination of movements of a definite segment or segments of one or both of the opposite limbs; and that secondary movements are due to the subsequent invasion, by the discharge of nerve energy, of those portions of the cortex which lie nearest to and are in close relation to parts stimulated. There is, therefore,

an overlapping of the borders of various motor centres, or, in other words, the commingling of neighbouring representations of movement. This view is in harmony with the views of Exner and Luciani, now widely accepted. And in the drawings given to show the location of the face, arm, and leg, motor areas of the cortex, the necessity of distinguishing absolute from relative areas is implied.

The lower third of the anterior and posterior central convolutions (ascending frontal and parietal), from the precentral sulcus to the interparietal sulcus, constitutes the motor area of the face; but this is subdivided into an upper anterior part, governing the upper face and angle of the mouth; a lower anterior part, governing the vocal cords; and a lower posterior part, governing the lower face and floor of the mouth.

The middle third of the anterior and posterior central convolutions governs the upper limb, but its motor area also extends into the middle frontal gyrus, where it is blended with that of the head and neck, and into the superior frontal gyrus, where it is blended with that of the leg. In this area the shoulder is centred in its upper part, the elbow next below, and posteriorly; the wrist next below, and anteriorly; the fingers next below, and anteriorly; the thumb lowest, and posteriorly. Viewing the movements of the limb as a whole, Horsley finds that there is hardly one in which the elbow and wrist do not take part, while the wrist and elbow are rarely moved alone. Hence absolute centres for their movements are not extensive, but relative centres are quite widely distributed. He claims that the subdivision of the motor area for the arm is confirmed by cases of cortical tumour, which he has operated upon, the beginning of the spasm in each case being different. In one case the fit began with flexion of the shoulder, and the tumour was on the upper part of the arm area. In another the fit began in the thumb, and the tumour was found in the lower part of the arm area.

The motor area for the lower limb is very extensive, including the posterior sixth of the superior frontal gyrus, the upper third of the central convolutions, the paracentral lobule, and the superior parietal lobule as far back as the parieto-occipital fissure. The anterior part of this region governs combined motions of the leg and arm, the middle part of the leg alone, the great toe being represented in the paracentral lobule. Further subdivision of this region is reserved for another paper. But cases are cited which

prove that such a subdivision is probable, spasm and paralysis, limited to the great toe, having been in two cases the early symptoms of lesion in the paracentral lobule. The movements of the head and neck, with that of conjugate deviation of the eyes, are governed by the area lying in the posterior part of the three frontal convolutions—a conclusion which confirms the statement of Munk, made six years ago, to which, however, no allusion is made.

Having thus determined the exact location of the motor areas of the cortex, the topographical relation of these to the skull is considered. The fissure of Rolando is first located according to Thane's method. The length of the middle line of the head, from the root of the nose to the occipital protuberance, is taken, and halved. One-half inch behind the centre point of this line the upper end of the fissure of Rolando is found in adults. The angle made by the fissure with the middle line is 67° . A strip of flexible iron, having an arm attached to its middle, the arm making an angle of 67° with the strip, is used as a means of measurement, and when the strip is laid on the middle line of the head, and the junction of the arm and strip placed over the theoretical situation of the upper end of the fissure of Rolando, the arm lies over the fissure; but as the fissure of Rolando bends slightly backwards in its lower third, the arm of the instrument indicates only the upper two-thirds of the fissure. The fissure of Sylvius is next located. It commences at the pterion, and passes upwards and backwards as far as the highest point of the squamo-parietal suture, whence it curves slightly upwards towards the centre of the parietal eminence, which it nearly reaches. The pterion is half way between the stephanion and the upper border of the zygoma, the measurement being taken along a line drawn vertically to the zygoma from the stephanion. The stephanion is the point where the temporal ridge crosses the coronal suture, both of which can be readily made out by steadily pressing the scalp with the thumb over their supposed sites. If the coronal suture cannot be felt, there can be felt a rounded ridge, bounded by two grooves, and the suture lies in this ridge. The highest point in the squamo-parietal suture is under the temporal muscle, in a vertical line drawn in front of the articulation of the lower jaw, being at the point, at about the junction of the upper and middle thirds, of the distance between the ridge of the temporal muscle and the border of the zygoma. The anterior branch of the fissure of Sylvius

runs upwards and forwards from the pterion, continuing, as it were, the line of the sphenoido-squamous suture, but commencing one or two millimetres in front of it. The precentral sulcus runs parallel to, and just behind, the coronal suture, and reaches to about the centre of the fissure of Rolando; from it diverges the inferior frontal sulcus, about opposite the superior temporal ridge. The superior frontal sulcus commences in the ascending frontal convolution, about midway between the fissure of Rolando and a line continued upwards, in the line of the precentral sulcus. The interparietal sulcus, which forms the posterior boundary of the motor area, can be located after the position of the fissures of Sylvius and Rolando are known, for it begins opposite the knee-like bend in the fissure of Rolando, and turns backwards just below the horizontal level of the superior frontal sulcus. Here it lies midway between the fissure of Rolando and the centre of the parietal eminence. Further up, as it passes backwards, it lies midway between the longitudinal fissure and the centre of the parietal eminence. The parieto-occipital fissure lies just in front of the lambdoid suture. Having found the positions of the fissures and sulci, the situation of the convolutions can be readily determined.

[To be concluded.]

NITRO-GLYCERINE IN HEART FAILURE.

DR. FUSSEL, of Philadelphia, reports three cases in which the hypodermic injection of two drops of a 1 per cent. solution of nitro-glycerine in heart failure was followed by the best results. The first was that of a woman, aged sixty-three, suffering from disease of the mitral valves; the second was a case of typhoid fever in a man, aged forty-five; and the third was that of a man, aged fifty-nine years, an habitual drunkard, who had disease of the mitral valves.—*Philadelphia Medical and Surgical Reporter*, June 2nd, 1888.

DISINFECTANT.

L'Union Médicale, No. 169, recommends the following disinfectant for sick rooms:—Camphor, 50 grammes; chlorinated lime, 50 grammes; alcohol, 50 grammes; water, 50 grammes; eucalyptus essence, 1 gramme; essence of cloves, 1 gramme. Mix and make a solution. Of this solution a few drops is sufficient to disinfect a chamber.

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SAMUEL GORDON, M.D., F.K.Q.C.P.I.
General Secretary—W. THOMSON, M.D.

SECTION OF PATHOLOGY.

President—J. MAGEE FINNY, M.D.
Sectional Secretary—J. B. STORY, F.R.C.S.I.

Friday, November 2, 1888.

The PRESIDENT in the Chair.

Opening Address.

THE PRESIDENT delivered his opening address. [It will be found at p. 14.]

Case of (a) Popliteal Aneurysm, cured ; (b) Thoracic Aneurysm, fatal.

DR. WALTER SMITH exhibited the viscera of a man, aged fifty-four years, admitted into Sir P. Dun's Hospital, May 18, 1888. He was a porter by occupation, and enjoyed good health although not temperate. Thirty-four years ago he had a venereal sore on penis, and a suppurating bubo.

About eight years ago he was in Jervis-street Hospital for a tumour in left popliteal space, which was treated by "pressure," and cured. April 10th, 1888, he suddenly became faint and greatly distressed in his breathing, and after five months' suffering died.

The prominent symptoms were—pain across upper part of chest, over left side and down the arm, also over the upper dorsal spines, which were tender. He was much troubled with dyspnœa, but laryngeal symptoms were never marked, and he could swallow without difficulty.

A considerable bulging of the three upper ribs on the left side existed, dull on percussion, and exhibiting pulsation synchronous with that of

the heart. There was neither cardiac nor aneurysmal murmur. The pulse in left arm could scarcely be felt, and was delayed.

A few days before his death he was seized with rigors, retching, and intense pain in back and left side. The temperature rose to 103·4°. He gradually became cyanotic, and died on September 25th.

Post mortem examination:—Left pleura adherent; right pleura almost completely free. Numerous sub-pleural hæmorrhages over base of right lung. Occupying upper part of thorax was a large ovoid tumour, about five by four inches. This proved to be an aneurysmal sac, arising about one inch above semilunar valves of aorta, and almost completely filled with a firm laminated clot. The bodies of 2nd, 3rd, 4th, and 5th dorsal vertebræ were eroded, and the posterior wall of sac of aneurysm being deficient, the blood clot lay in contact with the vertebræ. The innominate and left carotid arteries were not involved; the left sub-clavian artery was flattened by the tumour. The œsophagus was incorporated with the wall of the aneurysm, and the left vagus nerve was flattened into a tape-like band.

The aorta was slightly atheromatous above and below the aneurysm.

An old infarction was found in right lung. The left popliteal artery and vein were fused together into a firm mass, and the lumen of the artery was completely occluded by a dense organised thrombus.

The PRESIDENT said—The late Dr. Stokes directed particular attention to this tendency to change of form as a valuable sign in the diagnosis of thoracic aneurysm as distinguished from other tumours.

DR. M'KEE remarked that no very advanced degree of atheromatous or sclerotic change was necessarily associated with aneurysm; and this was supported by the fact that aneurysm was not a disease of late, but rather of middle life. A point in this case which struck him as rather anomalous was the smallness of the heart. An interesting question was whether aneurysms occurring in persons with a syphilitic history were attributable to immediate syphilitic change or to the effects of the syphilis on the constitution generally. The latter hypothesis was, he thought, sufficient to explain the occurrence of the aneurysm.

DR. FOOT said this case bore out three important points laid down by the late Dr. Stokes. One was the non-increase of the tumour, by which it was distinguished from other tumours which were of a rapidly growing nature. The second point to which Dr. Smith had drawn attention was the absence of murmur. The third point, to which Dr. M'Kee had drawn attention, was that in thoracic aneurysm the heart was not necessarily hypertrophied unless the aneurysm was sufficiently near to the region of the aorta to make the valves incompetent. The case reminded him (Dr. Foot) of one which he had at the Meath Hospital many years ago.

DR. BIGGAR remarked that, a great many years ago, when Spurzheim was in this city, he said that he had found the arteries of Irishmen to be

much thinner than those of persons of any other nation that he had an opportunity of examining.

DR. SMITH, in reply, said that if Hibernian arteries were thin, they were evidently elastic, and able to stand a sudden shock. An important clinical point was the variability of the signs and symptoms of aneurysm, and another feature was the curious relief that was sometimes temporarily given by a local abstraction of blood in the case of aneurysmal tumours, and which would not have the same effect at all in an organic tumour. The infrequency of murmur was one of the points of difference between thoracic and abdominal aneurysms.

Case of Ectopia Ventriculi.

DR. C. B. BALL communicated a case of ectopia ventriculi. A tumour the size of a pea was removed from the navel of a child, aged two months. The surface was red and moist, and microscopical examination showed that their surface consisted of glands identical with the pyloric glands of the stomach. The centre of the tumour was composed of blood vessels and muscular tissue. Only six of the recorded cases exhibited gastric glands, most of the others having a mucous membrane similar to that of the intestines.

DR. M'KEE asked could any explanation be offered of the fact that the tumours were different on the several recorded cases.

Case of Cystitis.

SIR WILLIAM STOKES communicated a case of cystitis after the removal of papillomatous tumours from the female bladder. The tumours had been removed some three years before the death of the patient, by Dr. Greig Smith, and the *post-mortem* appearances were those of cancer of the bladder.

DR. M'KEE had examined a portion of the bladder in this case, and found clusters of epithelial cells in the muscular layers, which could not have existed there if the tumour had been simply a benign one.

MR. WHEELER said he had had four cases of papillomatous growths under his care from time to time.

PROFESSOR BENNETT said the question here was the same as that raised in the case of the late Emperor of Germany—namely, whether it was possible that a papillomatous tumour, which was proved by microscopic examination to be benign, could pass into an epithelioma. They did not usually find cases of papilloma of the anus and other localities turning into carcinoma.

DR. FOOT observed that the kidneys of the patient, which had been sent round, appeared to him to be quite sufficient to account for her death, when taken together with the prolonged irritation, pain, and loss of rest that accompanied the cystitis.

MR. STORY said he had no difficulty in believing in the development of a benign tumour into a malignant one.

SIR WILLIAM STOKES, in reply, said that Professor Bennett would find it to be laid down by several authorities that papillomatous disease of the bladder had a special tendency to run into carcinoma, and he thought, from what had been laid down by Hutchinson and Sir James Paget, that there was a pre-cancerous stage in a vast number of cases of cancer.

On the motion of DR. FOOT, seconded by DR. MACSWINEY, it was ordered that the specimen should be sent to the Reference Committee.

The Section then adjourned.

Friday, November 30, 1888.

The PRESIDENT in the Chair.

Fracture followed by Gangrene.

MR. W. I. WHEELER communicated a case of fracture followed by gangrene.

Epithelioma in the Horse.

DR. R. GLASGOW PATTESON said:—Epithelioma is an excessively rare disease among the domesticated animals, while among wild animals, living either in confinement or in their natural state, it is almost unknown. Mr. Bland Sutton has met with only two examples. One was in a Japanese wolf; the growth occupied the mucous membrane between the gums and the tongue, and presented the appearance of a leathery patch, resembling the chronic superficial glossitis—the so-called “ichthyosis linguæ,” which occurs in man. The second growth occurred in the anus of a dog. Mr. M’Fadyean, Demonstrator of Pathology in the R. V. College, Edinburgh, has not met a case; and both he and Mr. Sutton agree in the observation that tumours from the penis of the horse are generally fibromatous or papillomatous.

The specimens were obtained from a horse ten years old, from which two previous growths had been removed. The tumour was situated on the inferior aspect of the penis, involving also the sides and part of the upper surface of the organ. It was about $2\frac{3}{4}$ inches in length by about $1\frac{1}{2}$ inches in width, the longest axis lying transversely. Its edges were raised, nodular, and everted; the surface irregular, with commencing ulceration. Microscopically it proved to be a typical epithelioma, the “cell nests” being specially well marked.

Another point of interest in the tumour is that, although originating in a part the epithelium of which normally contains pigment, yet in no portion of the neoplasm could pigmented cells be found.

In the available records of veterinary literature I have been unable to meet with a case of epithelioma of the penis.

PROFESSOR BENNETT said that the case just submitted distinctly proved the occurrence of epithelioma in one of the lower animals. It had been long familiar to pathologists that carcinoma, in the form of scirrhus, occurred in the lower animals. These cases were important as tending to disprove an absurd theory that cancer in man was a descendant of syphilis. Now it was certain that neither the horse nor the dog at least could be ever infected with syphilis.

Tubercular Ulceration of the Intestine.

DR. BEWLEY exhibited, for DR. JAMES LITTLE, a case of tubercular ulceration of the intestine. The patient from whom the intestine had been removed suffered for two years from phthisis, and for the last three months of his life from uncontrollable diarrhoea. The small intestine contained 79 large typical tubercular ulcers, and the large intestine about 30. The lungs showed the ordinary phthisical changes. Dr. Little called attention to the fact that the man, in spite of such lesions, was very considerably fat.

Diseased Heart.

DR. MACSWINEY exhibited and gave an account of the following case of a diseased heart :—

A woman, aged seventy years, was brought dead to Jervis-street Hospital. At the autopsy, nothing abnormal to account for death was found in the head or abdomen. The lungs were also healthy. Upon opening the pericardium, which was healthy, the heart was found large, very hard, and having some adipose tissue deposited upon its right upper surface. All its cavities were quite empty; both ventricles were contracted. The right auricle and ventricle were, in all particulars, normal. The left auricle was of normal size, but its walls were hypertrophied. The auriculo-ventricular ring was hard, corrugated, greatly narrowed, admitting the tip of one finger. The left ventricle was greatly hypertrophied, and of small dimension in the cavity. The aortic valves were entirely consolidated and converted into a dense, hard, calcified mass. A small aperture existed in their centre, admitting barely a goose-quill; this hole allowed the passage of water from the aorta into the ventricle. No medical history could be obtained, so that one could only speculate as to the physical signs and symptoms during life. The woman's daughter, however, positively assured Dr. MacSwiney that her mother "never lay a day," never consulted a doctor, and made no particular complaint of ill health. It is noteworthy that there were no external appearances on the body, which was wasted, pointing to the cause of death—neither œdema, nor dropsy, nor cutaneous venous congestion. Also, that there was absence of any atheromatous patches upon the thoracic aorta.

Congenital Malformation in a Mummy.

PROFESSOR BENNETT submitted a case of congenital malformation in a mummy. The bones were those of an Egyptian mummy that was many years ago placed in Marsh's Library. There was an extraordinary contrast between the two humeri. The left was perfectly normal, and was apparently that of a full-sized man. The other humerus was very small and stunted, and had at the elbow end this remarkable peculiarity, that it was wider from condyle to condyle than the bone on the sound side, while the distance between the margins of the articular surfaces was a trifle less. The upper extremity of the stunted humerus articulated with a joint which showed traces of chronic rheumatic arthritis. The joint was evidently one in which motion had taken place. He called this a congenital malformation, because he did not know any other explanation of the conditions. The bones of the forearms corresponded in length, but the right were a trifle slighter and a little atrophic; there was no sign of arrested development, nor was the clavicle different from that at the other side. He came across an exactly similar specimen many years ago while dissecting, which was also exhibited.

MR. FRAZER said there were also found a few pieces of the original mummy case, with the gilding, ornaments, and bandaging, sufficient to show what it was. He was particularly struck by the peculiar perforation at the lower end of the mummy humerus. He found the same thing in the bones disinterred some years ago at Donnybrook, in connection with a Danish massacre that was known to have occurred there.

MR. LENTAIGNE said it seemed to him that the deformity might have resulted from epiphysary fracture, which often arrested the development of the bone. In both the mummy and the modern bone it was not at all improbable that there might have been a fracture; and if that occurred near the epiphysis in early life it would have caused an arrest of development. If the malformation of the upper arm were congenital he could not see why it should be accompanied with a perfectly natural forearm.

PROFESSOR BENNETT, in reply, said that Jonathan Hutchinson was the leading authority for arrest of development after epiphysary fracture. He did not know a single recorded case of arrested development following epiphysary separation. Epiphysary separations always united with great accompanying deformity, but there was not a single trace of any such deformity on either of the bones now before them.

Case of Rare form of Typhoid Ulceration of Ileum.

DR. BEWLEY showed the ileum of a patient who had died of hæmorrhage in typhoid fever. The case had been a long one, consisting of a primary attack and two relapses. The ulcers were few in number, eight or ten, and (with the exception of two or three in the cæcum) were con-

fined to the lowest 3 feet of the ileum. Their surface was smooth, and appeared to be in process of healing, but in the centre of several of them was a fresh ulcer surrounded by thickened and overhanging edges.

SECTION OF OBSTETRICS.

President—W. J. SMYLY, M.D., F.K.Q.C.P.

Sectional Secretary—ANDREW J. HORNE, F.K.Q.C.P.

Friday, November 23, 1888.

The PRESIDENT in the Chair.

Exhibitions.

DR. MASON exhibited two ovarian cysts. One was almost unilocular, and had a solid mass on one side. It was not adherent to any of the structures, and was removed without difficulty, and the woman made an uninterrupted recovery. The other cyst was removed from a woman, forty-seven years of age, and was very much larger. There was a large amount of ascitic fluid, and the tumour was practically solid. No fluid came from it when it was tapped, and it had to be broken down and removed almost piecemeal. The case went on very well for eight days after the operation. On the night of the tenth day, however, she got bronchitis; her lungs seemed to fill up, and she died in twelve hours after being attacked. On *post mortem* examination the abdomen was found to be healthy, but there were signs of gradually organising lymph in it.

DR. MASON also exhibited an anencephalic fœtus. The upper part of the skull was totally deficient. The child presented by the lower extremities, and was delivered without difficulty. After its birth the heart pulsated for a few minutes, but no respiration was established.

Opening Address.

The PRESIDENT delivered his address. [It will be found at page 28.]

Sloughing Fibrous Polypus of the Uterus.

DR. LANE read notes of a case on the above subject. The patient, aged thirty-two, married three and a half years, never pregnant; had had menorrhagia since January, lasting three weeks at a time, and accompanied by great fœtor. Slight difficulty in passing urine was experienced on June 10th, followed by complete retention next morning. On vaginal examination the tumour was found projecting through os. Torsion was first tried, but the tumour breaking down, a wire ecraseur was then applied and the pedicle cut through; a short straight midwifery forceps was then put on and the polypus delivered without the slightest injury to perinæum.

DR. MACAN said he saw the case. Notwithstanding the washing out, the smell was most horrid, and was calculated, in these antiseptic days, to make one disinclined to have anything to do with the case. The case was very oedematous, and the bottom of the tumour was like a huge carcinoma. Where there was sepsis before an operation of the kind, he believed the best way was to remove the original source of danger.

DR. NIXON observed that the odour was a point of importance in the case.

DR. LANE replied.

Mammary Inflammation and its Treatment by Elastic Pressure.

MR. ANDREW HORNE read a paper on the above subject. He believed the methods usually recommended and taught were gravely defective. Suppuration ought to be a very rare occurrence. Inflammation of the breast was almost always the result of infectious material gaining entrance through fissures and cracks of the nipple, and too much attention could not be paid by the attending physician when such a condition exists in the nursing mother.

The method of treatment advocated was to envelop the breast in a layer of absorbent cotton. Having first painted the breast with a five per cent. solution of oleate of mercury and morphin, then having procured an elastic web bandage, five yards long by three inches wide, he makes equable and gradual pressure over the inflamed gland, thereby securing the most perfect rest possible.

DR. MACAN said he had long used compression of the breast in certain cases, although he did not regard it as suitable where there was suppuration; but he felt that he could recommend Mr. Horne's plan, even where there was suppuration, as strongly as in other cases. It gave great relief to the patient, and was, he thought, a great step forward. One of the advantages was that in certain cases it would permit the woman to go on nursing, which, in the case of the poor, was a great advantage. One class of cases to which it seemed specially applicable was the troublesome form of affection in which, although the breast was enormously distended, and the skin quite tight, not a drop of milk would flow. Formerly he used to apply India-rubber plasters cut into strips.

DR. MASON said the plan recommended would greatly extend the treatment of sore breasts by pressure. Pressure was a very old mode of treatment; but the graduated mode of applying it which Mr. Horne put forward was comparatively recent, and seemed to have had most successful results. Varieties of plasters had for long been before them. Belladonna plaster he believed to be one of the best. In this kind of treatment it was most important to give the breast perfect rest. It was remarkable that women who did not attempt to nurse their children did not suffer from sore breasts.

THE PRESIDENT said this method of treatment was suggested to him some years ago by Mr. Horne, and he had since employed it. He used to employ Martin's bandages, but he believed Mr. Horne's arrangement to be much better. One of its best features was the covering up of the breast which it involved, by which external infection was prevented. One of the causes of inflammation of the breasts he believed to be—that when a patient felt her breasts growing swollen and tender she would ask some assistance from the midwife, who would handle a cracked nipple with fingers covered with putrid lochia, and in that way infect the breast and cause inflammation.

MR. HORNE, in reply, said the bandage he used was an ordinary web elastic. One of the reasons why he had adopted this bandage instead of elastic plasters, was that it was most difficult to put on elastic plasters in such a way as to get even pressure. Another reason was that elastic plasters were apt to produce an eczematous eruption on sensitive skins. That would never happen with his bandages. The belladonna and cere-cloth plasters, which for a long time used to be applied in the Rotunda, no doubt, used to give a great deal of relief; one reason for that being that they prevented the breast from being rubbed or used, or anything from happening to it which would lead to suppuration. As to Martin's bandage, patients to whom he had applied it complained that it caused uncomfortable heat; whereas his bandage being more porous, allowed a freer circulation of air.

SECTION OF SURGERY.

President—HENRY FITZGIBBON, Pres. R.C.S.I.

Sectional Secretary—MR. W. THORNLEY STOKER.

EDWARD HAMILTON, F.R.C.S.I., in the Chair.

Friday, December 7, 1888.

Notes on a Peculiar Dislocation of the Thumb.

MR. J. DALLAS PRATT read a paper on lateral luxation of the ungual phalanx of the thumb, the dislocation being complete and the direction of it inwards. He stated he believed that the case was so rare as to be almost unique. The patient, a man about forty years of age, had slipped in the street, and putting out his hand to save himself, came down on the point of his thumb. The injury, a cast of which was exhibited, was very difficult to reduce, the ordinary methods—Clove pitch, Hay's knot, Levi's apparatus, &c., &c.—having failed. Finally, by bending the joint, so as to increase the deformity and bring the phalanx at right angles to the proximal one, and then making traction in the axis of the thumb,

the bone went back into its normal position. There was no fracture, and the dislocation had not recurred a year after reduction.

THE CHAIRMAN said the case was one of extreme rarity, and the force producing the dislocation must have been such as would be likely to produce a similar result higher up, and even fracture of the bones.

MR. WHEELER corroborated Mr. Pratt's description of the case from personal observation. The two bones were lying side by side, showing complete dislocation, and the joint was reduced with perfect apposition. The man had come under his own notice on two previous occasions for dislocation of the shoulder and radius. Whether the ligaments were peculiarly lax or not he was unable to say.

MR. THOMSON asked whether Mr. Pratt regarded the case as one of complete or partial lateral dislocation. The cast did not seem to represent a complete lateral dislocation.

MR. PRATT replied that when he first saw the man the dislocation did not seem to him to be complete, the appearance of the thumb being exactly that represented by the cast now. But when he had manipulated the thumb, he satisfied himself that the dislocation was complete. The phalanges were particularly short—half an inch difference as compared with the normal length—while the skin was hard and thick. Hence the difficulty of reduction, which was only accomplished by increasing the deformity—i.e., bending the thumb at a right angle with the other joint, and putting his finger, as it were, in the axis of the thumb.

Exostoses of the External Auditory Meatus.

MR. ARTHUR BENSON read a paper on three cases of exostosis (or hyperostosis) in which he had operated successfully.

CASE I. was only alluded to, as its details had been previously reported. Ivory exostosis of external auditory meatus of gentleman, aged thirty-three, growing from anterior wall, sessile; skin covering it not ulcerated; middle ear not implicated; no otorrhœa. Operation done with dental engine, and completed with chisel and hammer, January, 1884. *Result:* No return whatever. Hearing now perfect.

CASE II.—PATK. D., aged forty-eight. Otorrhœa, with perforation of drum and stinking discharge for twelve months. Exostosis growing from anterior wall, completely filling the meatus, and latterly preventing escape of cheesy discharge; rather narrow bony pedicle. Operation done October, 1887, with chisel and hammer (dental tools). Bony growth removed; was egg-shaped; measured 14 mm. \times 10 mm., and weighed, when dried, 10 grains. *Result:* Hearing much improved; otorrhœa nearly ceased; no return. Perforation still present. Returned home within a week.

CASE III.—JOHN K., aged thirty-eight. Otorrhœa for nine months. Deafness almost total. Granulations covering meatus over exostoses.

Bony growth. Sessile from posterior wall very deep in meatus, and blocking it almost totally. Membrana tympani (probably) not perforated. Operation, October, 1888, begun with chisel and hammer, completed, one week later, with gouge and hammer. *Result:* Hearing perfectly restored; otorrhoea ceased. Returned home on third day.

In no case did any secondary inflammation or ill consequences follow the operation.

Mr. BENSON considered that no one method of operating could be considered best, but that each case required a method adapted for its special requirements as to size, position, shape, character and complications. Those who advocated only one method of operating were probably those who had but limited experience of the others.

MR. W. THORNLEY STOKER did not see why a dental engine could not be used to destroy the exostoses in the three cases, as it appeared to be a perfectly manageable tool in skilled hands.

MR. BAKER said certain difficulties arose in the way of using a dental engine. In the first case the drill was not sufficiently long to reach in, and the operation was conducted with a speculum, which was blocked up by the hand-piece, so that it was extremely difficult to see. Since then he had, in another case, advised getting a long drill made. It would be easy to cut across the mass of a large exostosis if a spear-pointed drill were used, and two or three holes bored, making a fissure burrow to connect the holes.

MR. BENSON replied that, even in this particular case, if they had a long drill it would be almost impossible to work it. The meatus was so extremely narrowed from chronic and recent inflammation, it was impossible to see anything at all. The operation had to be done by feeling, and it would have been extremely difficult to work the dental engine, especially as the situation was close to the membrana tympani. In this particular case the dental engine would not have been as easy to work as a gouge.

A Case of Cholecystotomy.

MR. KENDAL FRANKS read a paper on the above subject. [It will be found at page 7.]

MR. BARTON had had a similar case a year before that of Mr. Franks. The patient was an elderly woman, who had suffered from symptoms of gall-stone for many years. She was a good deal emaciated, and her nutrition had suffered from long-continued disease. She was heavily jaundiced, and the abdomen, on palpation, showed a well-marked tumour in the region of the gall-bladder. The tumour gave little difficulty in diagnosis. The condition of her muscles, and the pyriform shape in the position of the gall-bladder, left no doubt that it was the gall-bladder that was distended, indicating a tumour about the size of a pear. Progressive

emaciation threatened life. He accordingly operated. The operation was perpendicular to the costal cartilages, about four inches in length, and the peritoneum was readily reached and opened. He passed his finger into the gall-bladder, and felt through the walls a number of hard gall-stones, some being impacted in the common duct. The proceeding was adopted of sewing the anterior wall of the bladder to the edge of the incision. The lower part close to the gall-bladder having been opened, a large gush of greenish-yellow bile followed, and he removed with his finger three large stones. But the real difficulty was to reach the stone or stones impacted in the duct, and which constituted the cause of the obstruction. Squeezing or pressing was out of the question, and the only course was to reach the stone or stones with the finger or the forceps. Once the stone had passed through the duct it was exceedingly difficult to reach or press it in any way so as to make it slip backwards. After manipulation he extracted another stone, and concluded that his operation had been successful; but it was not, although the wound was antiseptically dressed, and there was an excellent recovery. There was no peritonitis except on glueing the edges together, and there was no bad result. At the same time there was no relief to the jaundice, and the obstruction remained. The dressings were saturated with bile, and one immediate result was that she felt better. She expressed herself greatly relieved, and her appetite increased; but being an elderly woman, she never fully regained strength from the low state of nutrition into which she had fallen; and in the course of three months she died apparently from want of nutrition. In the last month her appetite failed without further sign of disease that he could make out, while there could be no doubt that the operation relieved her distressing symptoms.

Mr. O'CALLAGHAN detailed his experience of four operations in which he assisted Mr. Lawson Tait. The difficulty in removing the stones was surmounted by plunging a scoop into the duct and manipulating with the finger outside, so as to work out the stone gradually. He did not stitch the gall-bladder to the opening until after removing the stones. Since then he had had two cases himself—one being successful and the other not; the latter, a woman, however, dying of malignant disease. While the operation was one of the most justifiable, as it was also one of the most brilliant, in surgery, the great difficulty was in the diagnosis; and from the results of abdominal surgery he would, where the diagnosis was in doubt, feel justified in making an exploratory incision. Of course, the drainage-tube was not removed until the bile was flowing freely and the temperature became normal.

MR. CROLY thought that the course of closing the gall-bladder and peritoneal surfaces left a space too limited to take out the gall-stones, and there was also the disadvantage of shutting out the surgeon from following the duct, and doing satisfactorily the most intricate part of the operation.

MR. THOMSON did not think there was much difficulty in cutting down on a gall-bladder and removing stones, if stones were there; but the great difficulty was to determine whether or not the surgeon had to deal with a distended gall-bladder. Mr. Lawson Tait, who had had the largest experience of any single person in abdominal surgery, had laid down the rule that when he was in doubt as to what was inside, he cut down upon it, and put in his finger and felt it. He had had a case in point in which all the symptoms indicated a distended gall-bladder; but on cutting down it was found to be a large perinephritic abscess, which extended forwards, pressed on the under-surface of the liver, on the gall-bladder, and on the duct, and had, from mere pressure, brought on attacks of jaundice, from which the lady suffered. Of course there were certain cases easy of diagnosis; he had himself removed over 2,000 gall-stones in a case—*post-mortem*! The tumour had been diagnosticated as malignant, and the lady, whom he saw only after death, suffered considerable pain. When she died, however, there was no difficulty of diagnosis. There was an enormous number of little stones, which could be felt, and even heard, when crushed between finger and thumb. The escape of bile through the abdominal wall had been noted in many cases—especially where the gall-bladder had been extirpated altogether, and suggesting the inquiry as to the precise use of that organ.

MR. FRANKS replied.—In one or two cases, where the structure had been found, and the bile flowed externally through the fistula, there was no injurious effect on the general health of the patient. Indeed, he had in his paper endeavoured to emphasise the proposition that the bile did not seem to be necessary to the economy of the human body at all; in fact, the gall-bladder did not secrete bile. The bile was secreted by the liver, and would flow into the intestine, even if the gall-bladder were extirpated. Mr. Lawson Tait showed that excision of the gall-bladder was as sensible and justifiable an operation to prevent the formation of gall-stone, as to excise the urinary bladder to prevent the formation of stone. There were, he pointed out, two distinct classes of cases—one of large numbers, and the other, more serious, of solitary gall-stones. The large gall-stones became impacted in the duct, and, if left alone long enough, would lead to suppuration. As regards Mr. Croly's justifiable criticism, in his case, before opening or suturing the gall-bladder he felt carefully the surface of the liver, and satisfied himself that there was no obstruction in the nature of stone or tumour upon either of the ducts, and there was no necessity to explore the gall-ducts from inside. The real disease was not gall-stone, or stricture of the cystic duct, but was a stricture of the common bile duct. As regards diagnosis, a gall-bladder distended with bile, not gall-stone, made the diagnosis a question of extreme difficulty. He agreed that in cases of doubt an exploratory incision was justifiable.

The Section adjourned.

SYNOTIA.

An Abstract from the Danish of Prof. Hannover, M.D., of Copenhagen.*

By J. F. KNOTT, M.B.

SYNOTIA is rarely met with in man; nevertheless, I have been able to collect a list of 34 cases (besides other doubtful cases), which I have either observed myself, or found described in the writings of others. As in the case of cyclopia [see this Journal for May, 1888], it is more frequent in the female fœtus than in the male, but the difference is by no means so great. In 25 cases of synotia, including simple synotia and those complicated by the co-existence of cyclopia, and in which the sex was sufficiently indicated, there were 9 males and 16 females. About one half of these fœtuses had arrived at full term, the others were aged 7 to 8 months—a few only being between 5 and 6 months. Among the lower animals it appears much more rarely than cyclopia; it is much more frequent in the sheep, while cyclopia is more especially found in the pig. The sub-joined table shows the relative frequency of this form of monstrosity as compared with that of cyclopia:—

		Cyclopia	Synotia	Synotia with Cyclopia
Man	-	103	16	18
Ox	-	29	6	—
Sheep	-	43	104	44
Goat	-	9	—	—
Deer	-	1	—	—
Pig	-	127	12	29
Horse	-	10	—	—
Dog	-	27	4	27
Cat	-	11	1	12
Hare	-	—	6	1
Rabbit	-	3	—	—

Synotia is found in two forms:—(a) without complication, as simple synotia; (β) accompanied by cyclopia.

Synotia Simplex.

In the Danish memoir is given the anatomical description of a male fœtus at 8 months, which has been preserved for many years (in spirit of wine) in the Museum of Pathological Anatomy of the University of

* Den menneskelige Hjernekal's Bygning ved Synotia og Misdannelsens Forhold til Hjernekal's Primordialbrusk. Af Adolph Hannover, M.D., Professor.

Copenhagen. In connection with this subject the author offers some remarks on the subject of synotia in general.

Whilst we have, in cyclopia, the præchordal portion of the primordial cartilage affected either wholly or in part, there is no defect in the subjects of synotia, excepting the tympanic ossicles and the anterior portion of the body of the sphenoid bone. The other defective bones are formed in membrane, but in taking account of the rôle played by the primordial cartilage, with regard to the data of its appearance (not of its ossification), and which precedes the formation of bones in membrane, we are led to find the true source of synotia in the primordial cartilage of the above-mentioned parts.

There is no doubt that the deformity of the ossicula auditus does not manifest itself at the time of their earliest appearance in the first branchial arch. According to my previous researches on the primordial cartilage, the thin auditory ossicles are formed as a coherent mass, and in man, as there is, at the beginning, no separation between the stapes and the internal wall of the tympanic cavity, so also do we find none between the malleus and incus and the cartilage of Meckel. The stapes does not seem to play any part in the deformity of synotia. In considering the appearance of the incus as represented in some of the figures illustrating this memoir, and comparing with the designs illustrating his memoir on the primordial cartilage, the author points out a striking resemblance in form. Instead of the inferior ramus being diverted almost vertically downward and the inferior branch nearly horizontally backward, both rami are applied to one another with apposed surfaces which may be said to be serrated and descend in almost parallel course.

Although it may be believed that the state of things which we observe in synotia could possibly result from a deficiency of space, which is also indicated by the oblique position of the whole bone, we are not, on the other hand, able to exclude the idea that the incus has suffered an arrest of development. But this arrest could not, of itself, have produced the synotia, so that it is necessary to seek the cause in connection with the malleus. The latter is extremely defective, and, in the cases we are now considering, is represented by the head alone, which is found with the incus. We still, however, want the principal proof that synotia results definitely from this defect, for we do not know how the cartilage of Meckel behaves. In fact, the malleus does not really exist in the foetus before the age of two months, and is represented only by a hemispherical eminence in which Meckel's cartilage ends posteriorly. This rests on the incus, and finally becomes the head of the malleus. Meckel's cartilage already begins to disappear in the human foetus at the age of $3\frac{1}{2}$ months; the crotchet—of which Dr. Hannover has demonstrated the existence, and by which it ends in front—will have disappeared at the age of 4 months. To be able to account for the rôle played by this cartilage, it

would be necessary to have at our disposal the results of researches made on synotic fetuses at a very early age, but none have up to the present been examined under the age of $3\frac{1}{2}$ months.

In whatever way we wish to conceive the relation existing between the inferior maxilla and the cartilage of Meckel—whether we look upon the maxilla as a “Deckknochen” of this cartilage, or (as the author has represented the relation) that we regard the cartilage of Meckel merely as the mould on which the bone is formed, it is, however, certain that this bone is also formed in the first branchial arch, and it is on this account probable that a single and identical cause has originally presided over the two formations.

The other part of the primordial cartilage of the cranium which presented an incomplete development in these cases was the cartilage of the sphenoid bone. Its body was depressed in front and the rostrum represented barely by a small rounded button-like elevation. This defect had re-acted on the neighbouring part of the labyrinth, on the sphenoid bone, and those bones resting on the sphenoid—the ossa palatina and vomer, which were so much depressed that the nasal fossa had but a diameter of 1 millimetre. Dr. Hannover also found a canal of Rathke open, as in the cyclopic fetus. The rest of the primordial cartilage of the cranium was usually normal. He has observed an excessive ossification of the pterygoid apophysis only.

We now proceed to examine the influence which these bones that ossify, not in the primordial cartilage, but in membrane, have on synotia, and we shall first occupy our attention with the inferior maxilla. This bone, in the cases described by him, was deformed and asymmetrical, and, indeed, so far rudimentary that we are justified in considering it as completely wanting, which is, possibly, the usual condition in such cases. Its action on synotia was, accordingly, in some degree negative. It is to be supposed that, during its growth and development, this bone contributes to keep in place the bones which form the inferior face of the cranium in such a manner that they do not take that convergent direction towards the median line of the body which is characteristic of synotia. Not now making the resistance of the inferior maxilla, the squamous portion of the os temporis was turned downwards, and the tympanic ring was at the same time rotated in such a fashion that the upper part where the circle is deficient, and which in the ordinary state of things is turned upward and outwards, was now directed forwards and inwards. The result of this is that the incus, whose place is otherwise behind the malleus, was found to be apparently in front of that bone, and so situated that its inferior ramus was placed against (and beneath) the margin of the tympanic ring—apparently anterior, but in reality posterior to the latter. The zygomatic arch had an external and an internal border, while the malar bone—completely rotated—was found on the inferior face of the cranium. The pressure of that bone had in its turn reacted on the superior maxilla,

the dental aspect of which was narrowed, the incisors and canines could not find room but by arranging themselves one a little behind the other, whence an elongation and forward displacement of the dental aspect of the bone and a narrowing of the palate. Finally, the palate bones had a smaller size and vertical measurement, and the diminutive nasal fossæ rested on a plane more oblique than ordinary. The principal cause of the displacement and the rotation of the above-mentioned bones should be sought for in the absence of the inferior maxilla.

The force which had rotated the bones on the inferior aspect of the cranium was so great, that it had also acted on the bones of the cranial vault. The parietal and frontal bones were very large; and the nasal processes of the superior maxilla, and the nasal bones themselves, were of abnormally large size. As a result of this, there was between the eyes an interval wider than the ordinary, while the eyes themselves were a little more prominent. In the lower animals, this interval may become so great that the eyes come to be placed on the sides of the head.

It is not rare that synotia takes a greater development among animals. The transverse fissure formed by the auditory orifices, united on the front of the neck, may become so great as to be confounded with the buccal opening; it is often buried at the bottom of a deep transverse furrow. The palate bones may be completely thrown out of place, and the nasal orifices formed solely by the mucous investment; the latter openings may completely disappear, so that the nasal cavity is entirely separated from the mouth. The dimensions of the great wings of the sphenoid may be notably reduced, while the alæ pterygoideæ are depressed, and may entirely disappear. Finally, the teeth may be so far displaced towards the median line of the body, and turned inwards, that they come into contact from the opposite sides by their grinding surfaces. This rarely happens in the case of the human foetus; but the cause of this phenomenon, which has for final result the complete disappearance of the teeth, is not quite clear. The inter-maxillary bone is distinct in animals, but I have not observed this defect in man.

Synotia cum Cyclopia.

The cases of synotia complicated with cyclopia—usually without the characteristic proboscis—are nearly as frequent in man as those of simple synotia. Cyclopia and synotia have each its distinct domain, which in man may be sharply defined. In the anterior portion of the cranium we accordingly meet, as signs of cyclopia, a simplification of the structure of the different parts of the brain—cerebral convolutions effaced, absence of the olfactory nerves, corpora striata also wanting; there may be either one or two eyes, with one optic nerve, or a single optic chiasma; there may be intermediate degrees of the deformity; we find

but traces of the ethmoid bone when there are two eyes each in its orbit ; the *alæ minores*, and the roots which form the optic foramen are reduced in size ; the nasal fossæ apparently closed by an osseous plate of the palate bone ; the nasal and inter-maxillary bones are absent ; but the superior maxilla presents this peculiarity—that its upper surface shows signs of cyclopia, the floor of the orbit forming a single plane, while the inferior aspect of the bone indicates signs of synotia by its narrowness and by the arrangement of the teeth. As evidences of synotia, we meet absence of the lower maxilla and anomalies in the tympanic ring and auditory ossicles ; the temporal bone is thrown down on the inferior aspect of the cranium, and the distance between those of opposite sides is diminished ; the articular tubercle and glenoid cavity are absent ; the great wings and pterygoid apophyses of sphenoid are reduced in size. The termination of the buccal cavity and of the pharynx in a *cul-de-sac* is an anomaly which, with certain modifications, is common to both cyclopia and synotia, as is also the patency of the canal of Rathke.

It is very rare that, so far as man is concerned, synotia attains a higher degree than that which we have just described ; nevertheless, we have some cases in which all the bones of the face have disappeared, as well as eye, nose, and buccal cavity, and where the cranium is formed but by the parietal, temporal (including the *os petrosum*), and occipital bones, while the external ears are present, and placed horizontally. Among animals, especially the sheep and pig, synotia is often enough found to present a very great degree of development. We sometimes meet in museums pieces in the form of ossified capsules, oval (and elongated), or oviform in shape ; these are but the occipital condyles and a portion of the *os petrosum*, and they form the only indication that we have a cranium before us. Such specimens present precisely similar cases—of an extremely advanced type—in which synotia is complicated with cyclopia. This is the condition to which Geoffrey St. Hilaire gave the name of *Hypognathia capsula* ; but such cases do not really form a separate variety.

CLINICAL RECORDS.

A Case of Resection of the Intestine—Recovery. By DR. K. A. WALTER.*

ANNA BRITA SVENSSON, a widow, aged fifty-two, was admitted to hospital on the night of September 21, 1885, with a strangulated inguinal hernia on the right side. She had shown symptoms of strangulation three days previously—severe pains in the belly, and vomiting of large quantities of ill-smelling stuff. She was already extremely weak, had a very small, quick pulse, low temperature, and violent stercoraceous vomiting. I therefore proceeded to operate at once, under strict anti-septic precautions, with the kind assistance of Dr. Bergendal.

No difficulty was met with in opening the hernial sac, and the hernia was found to be made up of a coil of small intestine, some 34 inches in length (three-quarters of an ell, as appeared afterwards on measurement), dark-red in colour, with small grey specks of inflammation here and there. The distal and proximal coils of intestine were so constricted at the seat of strangulation, that the gut was here covered only by the peritoneum, which had not yet given way before the inflammation that had already destroyed all the internal coverings. The hernial neck was carefully enlarged by means of small incisions in several directions, and the gut was drawn forward, after which it was rinsed with a lukewarm two and a half per cent. solution of carbolic acid, before the resection was performed. I, indeed, determined to perform resection in this case, being influenced, possibly, by my experience of two cases of artificial anus, the painful existence and melancholy result of which I had lately witnessed; although the difficulties of resection were pretty considerably increased by having to take away such a long piece of intestine, and by the fact that the mesentery could not be drawn out for more than an inch and a half in length. This obliged me, instead of making the usual triangular incision, to cut out of the mesentery a piece nearly the shape of a rectangle, with its long side in the direction of the gut, to stitch the short sides together with catgut, and to treat the intervening long side of the rectangle as a peduncle with close ligatures, partly touching each other. With much trouble, this was successfully effected, so as to completely stop bleeding, which was troublesome, although not particularly profuse. The ends of the gut were now washed, in order—so far as it was possible—to remove the intestinal contents from its interior; and they were brought together with the usual Lembert sutures

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in double, here and there in triple, rows. Naturally the ends fitted very badly into each other, as so long a piece as 34 inches of intestine had been taken away.

When the place of suture was about to be returned through the hernial neck, a body shaped like an ordinary blacklead pencil was observed in the gut—this was evidently an ascaris. We consulted as to how we should here proceed, and were just about to push in the intestine in spite of this parasite, which we could scarcely suppose to be alone, when the party concerned settled the question itself by sticking out its head, at a critical moment, through a weak part of the suture; the consequence of which was that it was removed from its then abode to a jar of spirit. Two strong sutures were inserted at the weak spot, and the gut was returned into the abdomen. After that, operation for radical cure by means of catgut ligatures. Drainage; corrosive sublimate gauze dressing. The operation lasted $2\frac{1}{2}$ hours. On awaking from anæsthesia, violent fæcal vomiting.

	Morning Temp.	Evening Temp.	
Sept. 21.	102.5° F.	102.2°.	No vomiting; all well.
„ 22.	100.7°	101.9°	
„ 23.	101.6°	100.7°	
„ 24.	100.1°	101.0°	
„ 25.	100.4°	100.7°	
„ 26.	100.1°	99.8°	
„ 27.	100.1°	100.7°	
„ 28.	99.8°	101.0°	
„ 29.	100.1°	100.4°	
„ 30.	99.8°	101.0°	{ Bowels moved by means of a simple injection.
Oct. 1.	99.2°	100.1°	{ Bowels moved at night without an enema.
„ 2.	98.9°	99.8°	Two normal motions.
„ 3.	101.9°	100.1°	
„ 4.	99.2°	100.7°	
„ 5.	98.9°	99.2°	

After this date, the temperature was only twice 5 or 6 tenths of a degree above 100.0°. The patient's state during the whole time calls for no remark.

October 14.—First change of dressing. Drainage-tube taken out; only slight discharge from the drainage opening.

October 28.—Healed, except at a couple of small superficial granulations.

The patient was allowed to remain in hospital until the 16th of November, owing to unfavourable external conditions.

SANITARY AND METEOROLOGICAL NOTES.

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VITAL STATISTICS

For four Weeks ending Saturday, December 1, 1888.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	Nov. 10.	Nov. 17.	Nov. 24.	Dec. 1.		Nov. 10.	Nov. 17.	Nov. 24.	Dec. 1.
Armagh -	25·8	31·0	20·7	46·5	Limerick -	14·8	20·2	24·3	14·8
Belfast -	22·5	22·0	21·4	20·0	Lisburn -	9·7	33·8	19·3	29·0
Cork -	22·7	23·4	22·1	18·8	Londonderry	21·4	16·0	14·3	21·4
Drogheda	16·9	8·5	8·5	16·9	Lurgan -	35·9	0·0	5·1	51·3
Dublin -	27·3	22·9	24·8	22·4	Newry -	14·0	10·5	14·0	10·5
Dundalk -	30·6	17·5	30·6	17·5	Sligo -	9·6	19·2	38·5	19·2
Galway -	10·1	23·5	23·5	10·1	Waterford -	34·7	30·1	18·5	20·8
Kilkenny	21·1	21·1	25·4	8·5	Wexford -	4·3	8·6	17·1	4·3

In the week ending Saturday, November 10, 1888, the mortality in twenty-eight large English towns, including London (in which the rate was 18·5), was equal to an average annual death-rate of 19·0 per 1,000 persons living. In Glasgow the rate was 22·3; and in Edinburgh it was 12·3.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 23·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 3·0 per 1,000, the rates varying from 0·0 in eight of the districts to 20·7 in Armagh. The 5 deaths from all causes registered in that district comprise 3 from measles (which caused 4 of the deaths registered in Armagh during the preceding week), and 1 from diphtheria. Among the 98 deaths from all causes registered in Belfast are 2 from diphtheria, 3 from simple-continued fever, 3 from

enteric fever and 5 from diarrhœa. The 35 deaths in Cork comprise 5 from whooping-cough, and 1 from diarrhœa; and the 11 deaths in Limerick comprise 1 from scarlatina and 2 from diarrhœa.

In the Dublin Registration District the births registered during the week amounted to 155—76 boys and 79 girls; and the deaths to 186—87 males and 99 females.

The deaths represent an annual rate of mortality of 27·5 in every 1,000 of the estimated population. Omitting one death of a person admitted into a public institution from a locality outside the district, the rate was 27·3 per 1,000.

Twenty-eight deaths from zymotic diseases were registered, being equal to the average for the corresponding week of the last ten years, and 3 over the number for the week ended November 3. They comprise 3 from measles, 4 from whooping-cough, 1 from diphtheria, 1 from ill-defined fever, 9 from enteric fever, 2 from diarrhœa, 1 from dysentery, 1 from erysipelas, &c. The deaths from enteric fever registered during the last five weeks amount to 30.

Seventeen cases of enteric fever were admitted to hospital, being 7 over the admissions for each of the two weeks preceding, but 2 under the number for the week ended October 20. Eight enteric fever patients were discharged during the week, 2 died, and 61 remained under treatment on Saturday, being 7 over the number in hospital on Saturday, November 3.

Seven cases of scarlatina were admitted to hospital, being 3 over the admissions for the preceding week, but 1 under the number for the week ended October 27. Four patients were discharged during the week, and 28 remained under treatment in hospital on Saturday.

No cases of typhus were admitted to hospital during the week, and there were but 5 cases of the disease in hospital on Saturday.

Deaths from diseases of the respiratory system, which had risen from 26 in the week ended October 27 to 34 in the following week, rose last week to 45, which number is 6 in excess of the average for the corresponding week of the last ten years. The 45 deaths comprise 25 from bronchitis, 13 from pneumonia or inflammation of the lungs, and 2 from croup.

In the week ending Saturday, November 17, the mortality in twenty-eight large English towns, including London (in which the rate was 19·7), was equal to an average annual death-rate of 19·7 per 1,000 persons living. In Glasgow the rate was 18·3; and in Edinburgh it was 15·0.

The average annual death-rate in the sixteen principal town districts of Ireland was 21·8 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts

were equal to an annual rate of 3·3 per 1,000, the rates varying from 4·0 in Newry, Kilkenny, Wexford, and Lurgan, to 24·2 in Lisburn. The 7 deaths from all causes registered in the last-named district comprise 2 from whooping-cough, and 3 from diarrhœa. Among the 96 deaths from all causes registered in Belfast are 1 each from scarlatina, diphtheria, simple-continued fever, and enteric fever, and 8 from diarrhœa. Two of the 4 deaths in Dundalk were caused by scarlatina. The 4 deaths in Sligo comprise 1 from measles and 1 from typhus; and the 6 deaths in Armagh comprise 2 from measles and 1 from diphtheria.

In the Dublin Registration District the births registered during the week amounted to 179—108 boys and 71 girls; and the deaths to 159—71 males and 88 females.

The deaths represent an annual rate of mortality of 23·5 in every 1,000 of the estimated population. Omitting the deaths (4 in number) of persons admitted into public institutions from localities outside the district, the rate was 22·9 per 1,000.

Deaths from zymotic diseases, which in each of the two weeks preceding amounted to 28, fell this week to 21, which number is 5 below the average for the corresponding week of the last ten years. The 21 deaths comprise 5 from measles, 1 from scarlet fever (scarlatina), 1 from typhus, 6 from whooping-cough, 1 from ill-defined fever, 1 from enteric fever (9 fatal cases of which were registered in the preceding week), 5 from diarrhœa, &c.

The number of cases of enteric fever admitted to hospital, which had risen from 10 in the week ended November 3, to 17 in the following week, fell to 15 this week. Nine enteric fever patients were discharged, 2 died, and 65 remained under treatment on Saturday, being 4 over the number in hospital at the close of the preceding week.

In the week ended November 10, 7 cases of scarlatina were admitted to hospital; this week the admissions fell to 4. Twenty-eight cases of this disease remained under treatment in hospital on Saturday.

No cases of typhus have been admitted to hospital during the last fortnight, and there were but 3 cases in hospital on Saturday, November 17.

Deaths from diseases of the respiratory system, which had risen gradually from 20 in the week ended October 6, to 45 in the week ended November 10, fell this week to 28, or 16 below the average for the corresponding week of the last ten years. The 28 deaths comprise 14 from bronchitis, and 9 from pneumonia or inflammation of the lungs.

In the week ending Saturday, November 24, the mortality in twenty-eight large English towns, including London (in which the rate was 17·2), was equal to an average annual death-rate of 18·2 per 1,000 persons living. In Glasgow the rate was 17·3; and in Edinburgh it was 14·1.

The average annual death-rate represented by the deaths registered last week in the sixteen principal town districts of Ireland was 22·5 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·5 per 1,000, the rates varying from 0·0 in Newry, Kilkenny, Drogheda, Wexford, and Lurgan, to 9·7 in Lisburn. The 4 deaths from all causes registered in the last-named district comprise 2 from enteric fever. Among the 93 deaths from all causes registered in Belfast are 3 from whooping-cough, 2 from diphtheria, 1 from simple-continued fever, 1 from enteric fever, and 4 from diarrhœa. The 34 deaths in Cork comprise 1 from measles, 4 from whooping-cough, and 2 from diphtheria; and the 18 deaths in Limerick comprise 3 from scarlatina.

In the Dublin Registration District the births registered during the week amounted to 232—109 boys and 123 girls; and the deaths to 175—79 males and 96 females.

The deaths represent an annual rate of mortality of 25·8 in every 1,000 of the estimated population. Omitting the deaths (7 in number) of persons admitted into public institutions from localities outside the district, the rate was 24·8 per 1,000.

Only 15 deaths from zymotic diseases were registered, being 16 below the average for the corresponding week of the last ten years, and 6 under the number for the week ended November 17. They comprise 2 from measles, 1 from scarlet fever (scarlatina), 3 from whooping-cough, 5 from enteric fever, 1 from diarrhœa, 1 from erysipelas, &c.

During the week ended Saturday, November 10, 17 cases of enteric fever were admitted to hospital. In the following week the admissions fell to 15, and this week they further declined to 11. Eleven enteric fever patients were discharged, 5 died, and 60 remained under treatment on Saturday, being 5 under the number in hospital at the close of the preceding week.

Five cases of scarlatina were admitted, being 1 over the admissions for the preceding week, but 2 under the number for the week ended November 10. Five patients were discharged, 2 died, and 26 remained under treatment on Saturday, being 2 under the number in hospital on Saturday, November 17.

Two cases of typhus were admitted. They are the only cases of the disease admitted to hospital during the last three weeks. Only 4 typhus patients were in hospital at the close of this week.

Thirty-nine deaths from diseases of the respiratory system were registered, being 11 over the number for the preceding week, but 10 under the average for the 47th week of the last ten years. They comprise 24 from bronchitis, 8 from pneumonia or inflammation of the lungs, and 2 from croup.

In the week ending Saturday, December 1, the mortality in twenty-eight large English towns, including London (in which the rate was 16·5), was equal to an average annual death-rate of 17·8 per 1,000 persons living. In Glasgow the rate was 19·8; and in Edinburgh it was 16·2.

The average annual death-rate in the sixteen principal town districts of Ireland was 20·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·1 per 1,000, the rates varying from 0·0 in Galway, Newry, Kilkenny, Drogheda, Wexford, Dundalk, and Lisburn, to 15·4 in Lurgan. The 10 deaths from all causes registered in the last-named district comprise 1 each from measles, whooping-cough, and diarrhoea. Among the 87 deaths from all causes registered in Belfast are 1 from whooping-cough, 1 from diphtheria, 2 from simple continued fever, 2 from enteric fever, and 4 from diarrhoea. The 29 deaths in Cork comprise 2 from whooping-cough and 1 from enteric fever. Among the 11 deaths in Limerick are 4 from scarlatina; and the 9 deaths in Armagh comprise 2 from measles.

In the Dublin Registration District the births registered during the week amounted to 179—98 boys and 81 girls; and the deaths to 155—78 males and 77 females.

The deaths represent an annual rate of mortality of 22·9 in every 1,000 of the estimated population. Omitting the deaths (3 in number) of persons admitted into public institutions from localities outside the district, the rate was 22·4 per 1,000.

Only 14 deaths from zymotic diseases were registered, being 10 below the average for the corresponding week of the last ten years, and 1 under the low number for the week ended November 24. They comprise 2 from scarlet fever (scarlatina), 1 from whooping-cough, 2 from diphtheria, 6 from enteric fever (being 1 over the number from that disease recorded in the preceding week), &c.

Fourteen cases of enteric fever were admitted to hospital, being 3 over the admissions for the preceding week, but 1 under the number for the week ended November 17. Twelve enteric fever patients were discharged during the week, 5 died, and 57 remained under treatment on Saturday, being 3 under the number in hospital at the close of the preceding week.

Three cases of typhus and 3 of scarlatina were admitted to hospital, against 2 cases of the former and 5 of the latter disease admitted during the preceding week. Five cases of typhus and 25 of scarlatina remained under treatment in hospital on Saturday, December 1.

The hospital admissions for the week include also 7 cases of measles.

Thirty-nine deaths from diseases of the respiratory system were registered, being equal to the number for the preceding week, but 9 under the

average for the 48th week of the last ten years. They comprise 26 from bronchitis, 10 from pneumonia or inflammation of the lungs, and 2 from croup.

METEOROLOGY.

*Abstract of Observations made in the City of Dublin, Lat. 53° 20' N.
Long. 6° 15' W., for the Month of November, 1888.*

Mean Height of Barometer,	-	-	-	29·690 inches.
Maximal Height of Barometer (on 21st at 7 p.m.),				30·168 „
Minimal Height of Barometer (on 27th, at 3 p.m.),				29·075 „
Mean Dry-bulb Temperature,	-	-	-	47·4°.
Mean Wet-bulb Temperature,	-	-	-	45·6°.
Mean Dew-point Temperature,	-	-	-	43·6°.
Mean Elastic Force (Tension) of Aqueous Vapour.	-			·288 inch.
Mean Humidity,	-	-	-	87·3 per cent.
Highest Temperature in Shade (on 16th),	-			59·5°.
Lowest Temperature in Shade (on 28th),	-			30·8°.
Lowest Temperature on Grass (Radiation) (on 28th),				25·0°.
Mean Amount of Cloud,	-	-	-	67·8 per cent.
Rainfall (on 26 days),	-	-	-	6·549 inches.
Greatest Daily Rainfall (on 28th),	-			1·519 inches.
General Directions of Wind,	-	-	-	W., E.S.E., E.

Remarks.

This was the wettest and most stormy November experienced in Dublin since the present records were begun more than a quarter of a century ago. There was scarcely any frost, and on two occasions severe thunderstorms occurred. Until the 15th, an anticyclone held over Scandinavia and the Baltic, while pressure was low to the southwestward and finally to the northwestward of the British Islands. Hence strong S.E. to S.W. winds and gales prevailed, and rain fell frequently. During the latter half of the month the barometer was very low in the far North, but high over France and Spain; hence strong W. winds or gales were prevalent, and the rainfall was again excessive. In Dublin, the precipitation was nearly three times the average, and there were only four days on which no rainfall was registered. The mean temperature was 3° above the average.

In Dublin the mean temperature (47·5°) was much above the average (44·5°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 47·4°. In the twenty-three years ending with 1887, November was coldest in 1878 (M. T. = 38·2°), and in 1870 (M. T. = 42·2°), and warmest in 1881 (M. T. = 50·3°). In 1886, the M. T. was as high as 46·4°; in the year 1879 (the "cold year"), it was 43·9°; and in 1887 it was as low as 42·6°.

The mean height of the barometer was 29·690 inches, or 0·177 inch below the average value for November—namely, 29·867 inches. The mercury rose to 30·168 inches at 7 p.m. of the 21st, and fell to 29·075 inches at 3 p.m. of the 27th. The observed range of atmospherical pressure was, therefore, 1·093 inches—that is, a little less than an inch and one-tenth. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 47·4°, or only 0·8° below the value for October, and 6·3° below that for September, 1888; that calculated by Kaemtz's formula—viz., $\text{min.} + (\text{max.} - \text{min.} \times \cdot 41) = \text{Mean Temp.}$ —from the means of the daily maxima and minima was 46·8°, or 3·1° above the average mean temperature for November, calculated in the same way, in the twenty years, 1865–84, inclusive (43·7°). The arithmetical mean of the maximal and minimal readings was 47·5°, compared with a twenty-three years' average of 44·5°. On the 16th the thermometer in the screen rose to 59·50° in the night—wind S.W.; on the 28th the temperature fell to 30·8°—wind calm. The minimum on the grass was 25·0° on the 28th. The rainfall was 6·549 inches, distributed over 26 days—both rainfall and rainy days were largely in excess of the values for the preceding month of October—viz., 1·227 inches on 16 days. The average rainfall for November in the twenty-three years, 1865–87, inclusive, was 2·340 inches, and the average number of rainy days was 16·9. The rainfall, therefore, was very much above the average, and the rainy days were equally in excess of it. In 1876 the rainfall in November was large—3·614 inches on 20 days. In 1872, also, 3·414 inches fell on 24 days, and in 1887, 3·012 inches fell on 18 days. On the other hand, in 1870, only 1·218 inches were measured on but 11 days, and in 1879 only 1·251 inches on but 10 days. The vast excess of the rainfall in 1888 is evident from these figures.

A lunar corona appeared on the 24th. High winds were noted on 18 days, and attained the force of a gale on ten occasions, the 2nd, 4th, 10th, 12th, 15th, 16th, 22nd, 24th, 25th, and 29th. The atmosphere was more or less foggy in Dublin on the 13th, 14th, 28th, 29th, and 30th. Lightning was seen on the night of the 1st. Severe thunderstorms occurred on the 20th and 28th. Hail fell with heavy showers of rain on the 5th, 6th, 20th, and 28th. Sleet and snow fell on the 20th and 27th.

Early on the morning of Thursday, November 1, the wind shifted to N., afterwards veering towards N.E. and E. Some flashes of lightning were seen after 9 p.m. of this day. A heavy fall of rain occurred on Friday evening. Saturday, the 3rd, was a mild dull day.

Very unsettled, squally, wet weather held almost throughout the week ending Saturday, the 10th. On Tuesday and Wednesday conditions were temporarily more favourable, an easterly air-current having gained the upper hand. At this time temperature became low and the air much drier than previously or afterwards. The bad weather was deter-

mined by the permanent position taken up by an area of high atmospheric pressure over Scandinavia, while a series of atmospheric depressions approached the S.W. of Ireland from the Atlantic, but made no further progress in an easterly or north-easterly direction. Strong S.E. winds or gales and heavy rains accordingly prevailed in Ireland, the E. and S.E. coasts suffering most severely, as is usual under the circumstances. In England and Scotland the weather was colder and drier, while in Germany sharp frost occurred. In Dublin the mean height of the barometer was 29.708 inches. The mercury rose to 29.900 inches at 9 a.m. of Tuesday (wind E.), and sank to 29.400 inches at 4 p.m. of Saturday (wind S.S.E.). The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 47.1°. The arithmetical mean of the highest and lowest daily temperatures was also 47.1°. Temperature in the screen rose to 52.4° on Monday (wind E.S.E.), and sank to 39.9° on Wednesday (wind also E.S.E.). There were gales on Sunday, Thursday, and Saturday, and rain fell on six days to the large amount of 1.739 inches. Of this quantity, .662 of an inch was measured on Sunday (wind E.S.E.).

In the second week (11th to 17th inclusive) the weather was rough and unsettled, except on Sunday, Tuesday, and Wednesday, which were fine days. The rainfall was indeed far less heavy than in the previous week, but the storms were more severe. Temperature remained very high for the season, particularly at night, and in fact the highest reading for the month (59.5°) occurred at night, in the early morning hours of Friday, the 16th. At first the winds were S. to S.E., but after Tuesday they varied between S. and W., and on Saturday they drew into W.N.W. In Dublin the mean height of the barometer was 29.690 inches, the readings ranging from 29.292 inches at 9 p.m. of Monday (wind S.S.E.) to 29.983 inches, at 9 p.m. of Saturday (wind W.N.W.) The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 50.2°, or 6° above the average for the time of year. The arithmetical mean of the highest and lowest temperatures was 49.9°. The thermometer in the screen rose to 59.5 on the early morning of Friday (wind S.W.), and fell to 42.1° on Sunday (wind S.S.W.). Rain fell on five days to the amount of .545 inch, the largest fall in 24 hours being .210 inch on Monday. Hail occurred at 1.15 p.m. of Friday. At 8 a.m. of Saturday atmospheric pressure ranged from 28.67 inches at Bodö, in the N.W. of Norway, to 30.46 inches at Lyons. Under these circumstances very strong S.W. to W. gales prevailed over Western Europe.

During the week ended Saturday, the 24th, there was another period of open, stormy, rainy weather. Throughout the week the barometer was very low over the northern parts of Scandinavia and the Norwegian Sea (29.34 inches to 28.40 inches), and equally high over the Peninsula

and southern France (30·31 inches to 30·61 inches). Accordingly, strong S.W. and W. gales swept in rapid succession across the British Islands, accompanied by generally high but unsteady temperature and frequent showers of rain. On Tuesday, a sudden cold “snap” occurred—sleet, snow, and hail fell, and at 2 40 p.m. a sharp storm of thunder, lightning, hail, and graupel passed over Dublin from W.N.W. The lightning was very vivid and of a deep violet colour. On Wednesday temperature rose again, remaining very high to the close of the week, except in Scotland, where a second “chill” was experienced on Friday. In Dublin the mean atmospherical pressure was 29·935 inches; the barometer fell to 29·701 inches at 9 p.m. of Monday (wind W. by N.), and rose to 30·168 inches at 7 p.m. of Wednesday (wind W.S.W.). The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 49·7, or 6·5° above the average for the time of the year. The arithmetical mean of the highest and lowest daily temperatures was 49·8°. Temperature in the screen rose to 56·5° on Saturday (wind W.S.W.), having fallen to 37·4° on Tuesday (wind W.N.W.) Rain fell on six days to the amount of ·428 inch. The largest rainfall in 24 hours was ·108 inch on Monday. There was a lunar corona at 11 30 p.m. of Saturday.

The stormy, rainy weather so prevalent throughout the month reached a climax in the period from the 25th to the 30th inclusive. It was ushered in by a fresh to strong S.W. gale, a high temperature, and heavy showers on Sunday, the 25th. A lull occurred next day, but Tuesday, the 27th, was a cold, wet day, temperature not rising above 41·4°, and sleet falling mingled with rain. A frosty night and morning followed, but on Wednesday a dense sheet of cirro-stratus overspread the sky from S.W., while detached cumulus clouds came up in an under-current from S.E. In the afternoon rain and hail fell in torrents, accompanied by much thunder and strangely vivid lightning. The rainfall in this storm amounted to 1·311 inches, most of which fell within three hours. On Thursday there was an easterly to southerly gale, and a driving rain continued for several hours. The last day of the month was wet and gloomy to fine. In Dublin the barometer sank to 29·075 inches at 3 p.m. of Tuesday, the 27th (wind N.N.W.). Temperature in the screen rose to 57·5° on Sunday forenoon (wind S.W.), and fell to 30·8° on Wednesday morning (wind, calm). Rain fell on every one of the six days, to the amount of no less than 3·013 inches, of which ·544 of an inch was measured on Tuesday, 27th; 1·519 inches on Wednesday, 28th; and ·527 of an inch on Thursday, 29th—2·590 inches on three days.

The rainfall in Dublin during the ten months ending November 30th has amounted to 25·768 inches on 173 days, compared with 15·378 inches on 141 days during the same period in 1887, and a twenty-three years' average of 25·254 inches on 177·4 days.

At Greystones, Co. Wicklow, the rainfall in November, 1888, was 5·02 inches, distributed over 19 days. Of this quantity ·54 of an inch fell on the 28th, ·53 of an inch on the 9th, and ·49 of an inch on the 2nd. Since January 1, 28·88 inches of rain have fallen at Greystones, on, however, only 123 days.

PERISCOPE.

EXAMINATION OF CANDIDATES FOR HER MAJESTY'S INDIAN MEDICAL SERVICE.

THE following papers were set at the examination of candidates for her Majesty's Indian Medical Service, held in August, 1888:—*Anatomy and Physiology* (Sir Joseph Fayrer).—1. Describe the frontal bone, giving an account of its connection with other bones, the parts of importance which are in relation to or connected with it, its structure and development. 2. Describe the origin, course, anatomical relations, and distribution of the internal iliac artery, and of its principal branches. 3. Describe the structure, anatomical relations, and functions of the retina. 4. Describe the origin and distribution of the fifth nerve within the cranium; trace the distribution of the inferior maxillary division, and give an account of its functions. 5. Describe the parts and the order in which they are met with in a dissection of the popliteal space. *Surgery* (Mr. Pollock).—1. Describe the condition known as syphilitic keratitis (hereditary), the peculiarities usually observed in a patient so affected, and the treatment to be pursued in such a case. 2. Describe the conditions observed in acute inflammation of the knee joint, the changes which take place in the course of the attack, and the treatment in its various stages. 3. A young man was violently pushed down, and fell on his back on the pavement. He did not experience any pain after the accident, and was able to walk home with perfect ease. A few months subsequent, he began to feel weakness in his legs, and this gradually increased until he was barely able to raise himself from the sitting posture, and, when upright, had difficulty in standing or walking. There was slight dull pain in the lumbar region, and increased discomfort on stooping forward, but no restrictions in the movements of the vertebræ. There was not any loss of sensation. What was the most probable cause of this paralysed condition, and what treatment should be adopted under such circumstances? It may be concluded that the patient recovered under treatment. 4. Describe the symptoms of fracture of the neck of the femur (1) when within the capsule, (2) when external to the capsule, and the treatment in each condition. 5. By what symptoms would a surgeon be able to diagnosticate rupture of the bladder, within the abdomen into the cavity of

the peritonæum? Describe the treatment to be adopted in such an injury.

6. What are the pathological conditions which give rise to (1) senile gangrene, (2) traumatic gangrene; and what treatment should be adopted in each condition? *Medicine* (Sir William Aitken).—1. A ship's captain, aged forty-five, was admitted to hospital on 23rd August, 1887, suffering from dyspnœa and dysphonia of about eight months' duration. He had always been an exceptionally healthy man, never having had any severe illness before; also, he had always been temperate, and never had any form of venereal disease. In January, 1887, he was shipwrecked off the coast of Ireland, and caught, at that time, a severe cold, which continued till two months ago; but during this time he had neither difficulty of breathing nor pains in the chest. About two months ago the dyspnœa and dysphonia complained of commenced. These symptoms set in suddenly (within twenty-four hours), and have been steadily getting worse. The power of phonation has never completely disappeared; but the degree of dysphonia varies very considerably at different times. The dyspnœa is very markedly exaggerated on any exertion; but when he is absolutely at rest, both the dyspnœa and the dysphonia are much alleviated. No pain is complained of in any part, but a peculiar sense of constriction in the throat is experienced on exertion. When lying at rest he feels the mucus collecting in his throat, and the attempts to expectorate excite the cough. There is no pain or difficulty in swallowing. The chest is well formed, and there are no bulgings or pulsations. The breathing is equal on both sides, and there is no absolute dulness; the only suspicion of impaired resonance being found at the top of the sternum towards the left side. There is no episternal pulsation. The cardiac dulness is, perhaps, slightly increased, and the sounds, though slightly irregular, are normal. The pulses are equal at the wrists, and the vessels generally are not atheromatous. The pupils are equal. On examination of the larynx no obstruction of the glottis is seen. The arytenoids are pale pink in colour, and of normal size; that of the left side is somewhat enlarged. The left vocal cord is midway between the position of adduction and abduction, and on attempted phonation is quite fixed and immovable. The right cord moves normally. Three days after admission pain and uneasiness in swallowing are complained of for the first time. 29th August.—A careful physical examination was made with the following result:—An area of slightly impaired percussion was detected on the left side posteriorly close to the spine, and at the level of the fourth, fifth, and sixth dorsal vertebræ. The respiratory murmur was fainter over the upper lobe of the left lung than on the right side. The dulness in front, over, and to the left of the *manubrium sterni* was quite distinct. On auscultating over the œsophagus no delay in deglutition could be made out. The urine was found to be normal. 7th September.—Up till last night patient has remained in much the same condition as on admission;

but about 2 a.m. he began to complain of an increased sense of stuffing in the chest, with inability to get up the mucus. This feeling was relieved by the use of the inhaler, and up till 4 p.m. he expectorated fully a pint of muco-purulent material. At this hour the sense of suffocation again supervened, and he had scarcely expectorated anything since. All the time the breathing has been exceedingly laboured and difficult, and at 9 45 a.m. dyspnœa of a very severe type set in, all the accessory muscles of respiration being vigorously called into play. The respirations numbered 24 in the minute, inspiration being pretty free and unaccompanied by much noise, but the expiration is prolonged, laboured, and noisy. Voice is almost completely gone; the lips are slightly livid; and the face is pale and bedewed with an abundant clammy sweat. The respiratory murmur over the whole left front is very feeble and distinct; over the right front it is loud, harsh, and full. The pulse numbers 120, and is weak and intermitting. 10th September.—After the last report of the 7th instant the patient lapsed into his usual state of chronic dyspnœa, but manifestly worse than before, and with greatly reduced strength. Expiration is still the most laboured part of the respiratory cycle; there is great difficulty in expectoration; and the pulse is very feeble and intermitting. Very distinct difficulty in swallowing was again experienced yesterday. The respiratory murmur is almost entirely abolished over the whole of the left lung in front, where also there is a great deficiency of resonance on percussion, and the dulness over the *manubrium sterni* is well marked. 11th September.—The patient died this morning during an attack of extreme dyspnœa. Discuss the pathology of this case. Explain the indirect or pressure symptoms on anatomical and physiological grounds, and the diagnosis to which they point. 2. Describe the condition of the urine usually found in a case of (a) acute nephritis; (b) chronic nephritis in a gouty patient. What are the chief complications to be feared in each of these cases? and, finally, describe the appropriate treatment and general management of the cases and complications. 3. What are the symptoms of venous congestion of the liver? Under what circumstances is it brought about, and what are the changes in the liver as the venous congestion becomes more and more extreme? 4. Enumerate the causes of *post partum* hæmorrhage. Give the differential diagnosis of its different forms, and describe the treatment. 5. Discuss the causation of the dyspnœa of asthma and bronchitis, and mention the drugs, their doses, and mode of administration which most of all tend to the relief of such dyspnœa. *Chemistry* (Dr. Allman).—1. When a mixture (in any proportion) of oxygen and hydrogen is exploded a certain volume of the mixed gases disappears. What were the relative volumes of oxygen and hydrogen in the portion which had thus disappeared? 2. Write down in the form of an equation the reaction which takes place on passing steam over pieces of iron heated to redness in a tube. 3. When a piece of filter-

paper, on which warm oil of turpentine has been poured, is plunged into chlorine its bursts into flame, with the formation of a dense cloud of black smoke. Explain this phenomenon. *Zoology*.—1. What are the more important characters by which amphioxus differs from a typical vertebrate? 2. Refer the barnacle (*Lepas*) to its proper class in the animal kingdom, and state your reason for so referring it. 3. Refer to its proper sub-kingdom and class an animal with the following characters:—Body protoplasmic, without differentiated organs or cellular tissues, without an enveloping membrane, and having the power of emitting extensile and retractile prolongations of its protoplasm. *Botany*.—4. Distinguish among the following genera those in which the ovary is coherent with the calyx (“ovary inferior”) from those in which the ovary is free (“ovary superior”):—*Ribes*, *Malva*, *Digitalis*, *Cucumis*, *Papaver*, *Conium*. 5. Mention one or more instances of the occurrence of vibratile cilia in the vegetable kingdom. 6. Refer to its natural order a plant with the following characters, and cite one or more examples:—Corolla monopetalous, 5-lobed, regular. Stamens inserted on its tube and alternate with its lobes. Ovary free, 1-celled, with two parietal placentæ. Seeds with fleshy albumen. Leaves opposite. *Physics*.—7. At what temperature does water attain its maximum density? 8. What is the equatorial current of the ocean? Mention its direction. To what cause may it be attributed? 9. A solid body weighs in vacuo 100 grammes, while in water at 40° centigrade it weighs 80 grammes. What is its specific gravity?

THE LATE DR. D. C. O'CONNOR, OF CORK.

At a largely-attended meeting of the medical profession of the County and City of Cork, held at the School of Art, Nelson's-place, Dr. W. C. Townsend in the chair, it was proposed by Dr. O'Sullivan, seconded by Dr. W. J. Cummins, and carried unanimously:—“That we, the members of the medical profession in Cork, desire to express our deep regret for the death of our esteemed and highly-honoured friend and *confrère*, Dr. O'Connor, whose services to the public, and in the promotion of the advancement of our profession during the past fifty-five years, must ever be remembered with gratitude and pride—gratitude because he was ever ready to lend a helping hand to all who sought his opinion or advice, and pride when we recall his many ennobling qualities of mind and heart which made him an ornament to his profession and a bright example to follow. As a teacher, a colleague, a friend, or a mentor, we have all been under obligations to him, and in paying his memory this humble tribute, we are only discharging an obligation in an humble but heartfelt manner. We also desire to convey to his son and immediate relations our sincere sympathy for the loss which they have sustained.” The following resolution was unanimously adopted at a meeting of the students of Queen's College,

Cork, Mr. R. J. Fitzgerald presiding :—"That we, the students of the Queen's College, in meeting assembled, desire to convey to Dr. O'Connor our deep sympathy on the occasion of the death of his revered and universally-respected father, Dr. D. C. O'Connor, who held for the last thirty-nine years the Chair of Medicine in this College, during which time he gained for himself the love and admiration of his pupils." At a meeting of the Cork Medical and Surgical Society, held at the School of Art, Nelson's-place, on November 28, Professor Corby, President, in the chair, it was proposed by Dr. W. J. Cummins, seconded by Dr. Donovan, and carried unanimously—"That we, fully sensible of our own loss in the death of our veteran member, and some time our President, the late Professor O'Connor, sincerely sympathise with his afflicted family, and request our Hon. Sec. to write and express to them our feelings of deep regret and condolence."

ULEXIN.

ULEXIN is an alkaloid derived from the seeds of *Genista*, or common gorse. It is crystalline in form, has a bitter taste, and is soluble in water. In medicinal doses it first acts as a stimulant, and then as a depressant of the respiratory mechanism; in larger doses it paralyzes respiration, slows and weakens the pulse, and finally causes narcosis through its influence on the nervous system—the muscles retaining their electric excitability till death. It has also a powerful effect on the kidneys, causing constriction, followed by a very large expansion, of short duration. Ulexin is a more powerful diuretic than Spartein, or preparations of *Sarothamnus scoparius*, and has been used with great success in cases of dropsy due to heart disease. As an antidote to strychnin, it not only prevents the onset of the strychnin convulsions, but has the power of checking them after they appear. The dose varies from $\frac{1}{20}$ to $\frac{1}{10}$ of a grain. The *Liquor Ulicis Diurecticus* is the only preparation to be had so far.—*Medical Herald*, August, 1888.

MINT AS AN ANÆSTHETIC.

PEPPERMINT water, the last new antiseptic, is said to be, like carbolic acid itself, a useful agent for producing anæsthesia, or, any rate diminishing hyper- or dysæsthesia of the unbroken skin. Dr. Armand Routh reports very favourably on its use in pruritus pudendi, especially in the neurosal form observed frequently during pregnancy, or at the climacteric. He orders a teaspoonful of borax and five drops of ol. menth. pip. to be put into a pint bottle of hot water, and well shaken; the parts affected to be freely bathed with a soft sponge. The soothing effect often lasts for many hours.—*Philadelphia Medical Times*.

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Authors of "Original Communications" will please consider themselves bound in honour to a strict observance of this understanding.

Authors of Communications are requested to write the prescriptions in their paper in full, and in English.

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MEDICAL SCIENCE.

FEBRUARY 1, 1889.

PART I.

ORIGINAL COMMUNICATIONS.

ART. VI.—*The Treatment of Tubercular Disease in and near Joints.** By J. S. M'ARDLE, F.R.C.S.I.; Surgeon and Lecturer on Surgery, St. Vincent's Hospital; late Senior Demonstrator, Catholic University Medical School.

THE cases which I intend to bring under your notice in this paper illustrate the radical methods of dealing with tuberculosis in and near joints. I omit all cases of resection, confining my remarks to the treatment of—

1. Scrofulous tendo-synovitis.
2. Acute and chronic tubercular osteomyelitis.
3. Circumscribed articular disease.

The necessity for the early and complete removal of diseased tendon sheaths and peri-articular deposits of a decidedly tubercular nature, is admitted by all who have discussed this subject, and is carried out by all who have faith in modern surgical methods. But in reference to the treatment of such cases as those I have detailed, of joint tuberculosis, there are many points still under discussion. I bring them before the Academy for the purpose of eliciting the opinion of members of this Section whose experience of such cases must, of necessity, be greater than mine, so that in future I may benefit by that knowledge in selecting arthrotomy,

* Read before the Section of Surgery of the Royal Academy of Medicine in Ireland, on Friday, January 18, 1889.

arthrectomy, or resection, for application in cases which come under my notice.

Owing to the introduction of the Listerian system of wound treatment, a great stimulus has been given to the study of tubercular disease, especially when primary and in the neighbourhood of joints. The safety with which exploratory incisions can be made has led to the recognition of the exact site occupied by diseased centres, and we have been enabled to study (without the danger of septic infection) the changes which take place in these centres, from the initial inflammatory lesion to the destruction of the tissues engaged.

The experience thus gained has convinced most surgeons that the palliative treatment of advanced tuberculosis of bone, tendon sheath, or joint (especially in adults) is highly unsatisfactory, and has brought into vogue the vigorous operative treatment now generally, and very successfully, adopted.

The importance of the knowledge gained by early exploratory incision can hardly be exaggerated, when we contrast the results of the present system of treatment with those obtained by the most carefully regulated palliative measures. The tediousness alone of the latter would condemn it; but, add to this the fact that the local trouble is a constant source of danger, since it may at any time cause a general infection, and who will doubt but that thorough eradication of the diseased centres is the only reliable treatment of the affection. "General tuberculosis," says Bull, "is the product of a self-infection arising from a caseous centre." If this cheesy mass be in a position accessible to the knife it is rational to expect that (while supporting the constitution, and thus raising a barrier against fresh outbreaks of disease) the only real remedy for the disease itself is its complete removal, since there is only faint hope of rendering it innocuous by any other treatment. The old methods of treatment invariably failed unless nature helped by causing an expulsion of the centres by suppuration, or prevented their deleterious effects by encapsulating them, or causing their calcification. Most of the cures of local tuberculosis by the expectant treatment have been only apparent. The local trouble may have been gradually removed by disintegration and absorption, or suppuration and expulsion, but Cohnheim has noted that local caseous centres have become the source of general tuberculosis long before they can be destroyed by such treatment as counter-irritation, strapping, injection, &c. When we consider

the usual situation and ordinary course of tubercular growths, little doubt will remain of the expediency of their early and complete removal.

The following are abstracts of notes of cases operated on by me for scrofulous disease, chiefly in connection with tendon sheaths, bones, or slightly engaging joints. I publish them for the purpose of showing the possibility of preventing the extension of mischief by proper surgical interference, and the value of radical surgical intervention even in advanced disease. For convenience of comparison I have divided the list according to the location of the disease, and irrespective of dates. I have placed cases not alone according to the situation in which the disease occurred, but according to the tissue which seemed to me primarily and chiefly affected.

SECTION A.—TUBERCULOSIS OF TENDON SHEATHS.

I wish first to call your attention to some cases of tuberculosis of tendon sheaths. This is a subject to which few surgeons have directed their attention, but all those who have communicated their results agree, that to be effective, treatment should be thorough and early. When I speak of tendon sheath tuberculosis, I mean the condition arising from the presence of primary disease in the synovial membrane of those sheaths.

Berger, in an able paper on this subject (*Deutsch. Zeit für Ch.*, 1886, p. 335), shows how rapidly destructive the disease is, and how frequently success attends early and complete removal of the affected tissues.

If we watch carefully the course of such cases, we find that at first slight loss of muscular power and deformity are the only effects of the disease, but later we find it travel through connective tissue, ligaments, &c., engaging the synovial membrane of neighbouring joints, and even at times infiltrating subjacent bones, so that ultimately a disease, originating in a tendon sheath, may necessitate a resection of a joint, or even an amputation, as in Case X., Sect. A.

I have frequently seen specimens laid before this Academy in which the bones removed by resection at the wrist and ankle were free of disease, and the following engraving shows how tubercular disease of the tendon sheaths may simulate carpal and tarsal osteitis. Fig. 1 is from a cast taken three days before operation in Case V. of the first series, and it shows a condition which rendered the

hand useless. A thorough scraping away of numerous cheesy masses from the dorsal tendon sheaths was followed by a complete cure of the local trouble.

The following are brief notes of the cases on which I operated up to January, 1886:—

CASE I.—*Synovitis of Sheaths of Flexors in front of Wrist.*—Thomas D., aged twenty-three years, a farmer, came under my care on the 10th of October, 1882, suffering from severe pain and considerable swelling on anterior aspect of right wrist. Some six months previous stiffness and pain commenced, both being in the beginning most marked whenever he attempted to lift heavy weights or move the wrist quickly. Soon the pain prevented his using the hand, and relief was sought by fomenting and poulticing the arm. This temporarily soothed him, but finding the swelling increasing in size, and becoming more firm, he came under my care, the condition being as follows:—He was in vigorous health, having been to the seaside for three months prior to his visit to me. Right forearm wasted, muscles thin and soft; wrist two and a half inches greater in circumference than left; a mass rounded at both ends projected upwards two inches into the forearm, and downwards into the middle of the palm, where it appeared nodular and semi-elastic, with a sense of deep fluctuation.

Operation.—An incision was made, extending from the upper edge of the swelling downwards to the centre of the palm, going through skin, superficial fascia, upper half of anterior annular ligament, and deep fascia. Into the wound a great quantity of fungous tissue immediately projected. On examining the structures carefully I found that the tendon of palmaris longus, and the index and ring tendons of the flexor sublimis ended abruptly at upper part of swelling. The remaining flexor tendons and the median nerve were close to the bones and interosseous membrane. I carefully dissected and scraped away the fungous tissue, passed a large drainage tube under the remains of the annular ligament, and closed the wound by three rows of suture—one fine catgut drawing together round the tendons the deep connective tissue; a second stronger suture (catgut) drawing the edges of deep fascia and annular ligament; the third (silk) drawing the edges of skin together.

1st dressing, 6th day.—Sero-sanguineous discharge; drain placed in upper angle of wound, and hand supported high on chest.

2nd dressing, 15th day after operation.—Wound healed except at upper end, where tube was placed. Silk sutures removed; only slight suppuration in track of tube. Passive motion commenced, the wound being dressed with lint and iodoform ointment.

The patient improved in strength from this date, and at the end

of the third week the wound was completely and soundly healed. One month after operation active motion was commenced, and now, six years after operation, he has a perfectly useful hand, the only inconvenience he suffers being a slight heat and aching in the wrist after severe exercise.

CASE II.—*Synovitis of Flexor and Extensor Sheaths from Ulnar Tuberculosis.*—Thomas C., aged twenty-eight years, consulted me about a nodular swelling along the flexor carpi ulnaris tendon. He gave me the following history :—Three years since he noticed a slight painless swelling along the inner side of forearm close to the wrist. After a time there was stiffness at wrist, and gradually swelling appeared on dorsum of hand and in front of wrist; the hand then became useless, and he went under treatment in one of the Dublin hospitals, where poultices were applied continuously for months, until suppuration occurred at the upper part of the swelling, and pus was discharged through a ragged opening, the mark of which remained. This relieved him for a time, but still he could not make use of the arm. At irregular intervals pus would be evacuated through a small sinus which remained where the first abscess opened. This state of things continued until he consulted me on Dec. 7th, 1883, when his condition was as follows :—

He was pale and anæmic; pupils dilated; pulse quick and irregular; respirations rapid, but no evidence of disease of lungs. He was unable to use his left hand, as he found that after exercising it an aching pain extended from the swelling downwards along little finger. This was specially noticeable in the evening. The flexor and extensor sheaths had become distended, as in serous ganglionic enlargement, and a dense semi-elastic swelling surrounded the lower end of ulna.

Operation.—Incision along inner edge of ulna down to bone; retraction of edges; scooping out of large masses of fungous tissue; evacuation of serous fluid from tendon sheaths by free incision; drainage-tube laid in dorsal and flexor sheaths; ulnar wound plugged with iodoform gauze.

First dressing, 7th day.—Swelling almost gone from hand; ulnar wound granulating; drains removed; iodoform to ulnar wound again, and Lister's dressing to hand and arm.

Second dressing, 17th day after operation.—Flexor and dorsal wounds firmly healed; ulnar wound filled with healthy granulation tissue. The ulnar wound was now dressed with zinc and carbolic ointment, and the patient sent to the Convalescent Home at Linden. When I next saw him, which was in the 6th week after operation, a firm cicatrix marked the position of the ulnar wound. I now allowed him to use the hand carefully, and in three months he called on me to say that his hand was as useful as ever it had been.

In February of 1886 I was asked by one of my colleagues to see a patient who was under his care suffering from pleuritic effusion and tubercular pneumonitis, and found that this was the poor fellow from whose arm I had, two years before, removed the mass of tubercle above referred to. There was no history of phthisis in his family, and I concluded that the poulticing had increased the local development of the disease, while the delay in removing it had allowed a general dissemination, which ended fatally.

CASE III.—*Tendo-Synovitis, Radial and Ulnar Sheaths.*—K. M., aged twenty-six years, a general servant, came under my care with semi-elastic, and in parts doughy, swellings along flexor carpi radialis, flexor and extensor carpi ulnaris. She was unable to use the arm, and had been so for some months. Three weeks before she came under my care, the radial swelling was opened, but only blood escaped. As in the other cases, I cut down on, and scraped away, cheesy masses which surrounded the tendons, and dressed the wounds with iodoform gauze. In five weeks from the date of operation she left hospital with a useful and painless arm.

CASE IV.—*Tendo-Synovitis of Extensors of Thumb.*—T. G., aged eighteen years, came to me from Queen's County, giving the following history:—Some six months before he consulted me he received a knock on the lower third of the radius on its posterior aspect. For some time this caused him no inconvenience, but three weeks or so after the injury he found pain and stiffness at the wrist, and difficulty in using his thumb. Five weeks after the injury he was quite unable to use his hand, owing to stiffness and pain at wrist. In the course of the next few months, notwithstanding the application of soothing dressing, the pain became very severe, and he came to me in the following condition:—One inch from the lower end of the left radius, a swelling extended for two inches along the posterior aspect of the bone, and extending inwards towards ulna. On the anterior aspect the tendons were pushed forwards by a semi-elastic swelling in the interosseous space towards the radial side. There was a general fulness at the wrist and inner side of hand, and the boy carried it resting in the other palm, as pain occurred whenever the hand hung down.

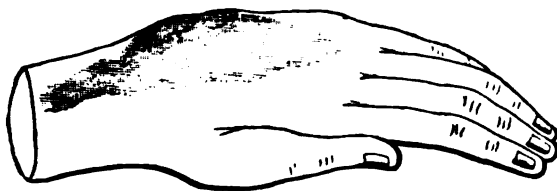
Operation.—I made an incision three inches in length on dorsal aspect of forearm over the most prominent part of the swelling, which I found to be, as I expected, a mass of tubercular granulation tissue, which passed downwards along the sheaths of the extensors. I scraped this material away thoroughly, and drawing the tendons to the ulnar side of the forearm, laid bare the interosseous membrane, which I found penetrated by the fungous tissue. I now made an incision on flexor aspect of radius, and drawing the tendons inwards, found a mass, similar to that already removed, engaging the anterior surface of the radius, and pushing

forwards into the anterior tendon sheaths; this I scraped away, and passing a drainage-tube through the interosseous space, I plugged both wounds with iodoform gauze, and surrounded all with a Lister's dressing.

The wound healed rapidly by granulation, and the lad left hospital without pain or tenderness in the arm, and with all the motions of the wrist and fingers free.

CASE V.—Dorsal Tendo-Synovitis, Hand.—Mary H., aged sixteen years, sent to me from Monaghan, with the following history:—Her father had died of phthisis; her mother was fairly healthy, but two of her sisters died of what appeared, from the history, to be mesenteric disease. The hand presented the appearance shown in Fig. 1, and was perfectly useless. Free dorsal incision, drainage, and the use of ethereal solutions of iodoform resulted in a rapid cure.

Fig. 1.



CASE VI.—Tuberculosis round Tendo-Achillis.—P. R., aged nineteen, came to me on the 10th of December, 1880, complaining of pain along the back of his right leg, and swelling behind his ankle. On examination I found a doughy mass, with here and there spots of indistinct fluctuation; motions of the foot caused a creaking sensation, and at the insertion of the tendon a rather firm projection was found, which was painful on pressure, and whenever he walked any distance this spot became larger and more painful. The patient was strumous looking.

Operation.—Incision three inches, along outer side of tendon, scraping away of cheesy deposit, and of bursa, which was the cause of prominence at insertion of the tendon.

This case was slow in healing, and fungous granulation tissue filled the wounds. Compresses saturated in iodoform solution was applied, and in the course of six weeks the parts were soundly healed. There has been no recurrence, and the patient is at present strong and well.

CASE VII.—*Tuberculosis of Sheaths of Peronei.*—Henry D., aged fifteen years, came under my care on the 14th of November, 1883. He was pale and anæmic, but not strumous looking. He enjoyed fairly good health until the summer of 1883, when, after twisting his right foot, he was for some time laid up, and got very thin. At that time he had a dull, aching pain on outer side of foot, and considerable swelling. After a time this subsided, and when I saw him a fusiform swelling extended from behind the outer malleolus, downwards and forwards, to the edge of foot. It was semi-elastic, with doughy spots, and here and there pain was occasioned by pressure or attempts at walking. Here free laying open and dissection of the sheaths of the peronei was followed by rapid cicatrisation, a useful foot resulted, and the boy's health improved immediately.

CASE VIII.—*Tubercular Synovitis of Sheaths in front of Ankle.*—Mrs. H. consulted me early in March, 1884, about a fulness in front of the left ankle. She complained of great stiffness after much exertion, when the ankle and dorsum of foot became red and more swollen than usual. Counter-irritation, strapping with ammoniacum and mercury, proved useless, and when I saw her in June the swelling was greater, and at a point corresponding to the line of the tibialis anticus, an ovoid semi-fluctuating swelling existed, tender on pressure, and apparently connected with a small round mass, which appeared under the head of the astragalus. Believing there was a collection of curdy pus here and fungous synovitis present, I made an incision from the middle of the front of the ankle, downwards and inwards, to the nodule under the astragalus. I scraped and dissected a large mass of fungous tissue from the inner aspect of the foot, and from round the tendons passed a drainage-tube across the foot under the tendons, and, closing the upper part of the wound, plugged the lower part with iodoform gauze.

The upper part united by first intention, and the lower part was firmly cicatrised in the second month after operation.

CASE IX.—*Case of Tubercular Tendo-Synovitis at front of Ankle.*—Mrs. F. came under my care early in September, 1885. She had suffered a good deal from pain and stiffness in her left ankle, the stiffness being greatest in the morning, and in the evening pain being more troublesome. On examination I found that a rounded fluctuating mass existed in front of the ankle, extending to the edge of the outer malleolus, where it was most prominent. None of the tendons could be felt, and the case is well represented in Fig. 2, taken from a cast of the foot. It seemed a case of tarsal osteitis, but when I cut down on the bones, which I did immediately, I found that peri-osteitis had been excited by the presence of extensive caseous deposit all round the anterior tendons. Cheesy and

fungous material were thoroughly removed, the upper part of the wound closed by deep catgut, and superficial silk suture, a large drainage-tube laid in, and carbolic dressing applied. This patient made a rapid and permanent recovery.

Fig. 2.



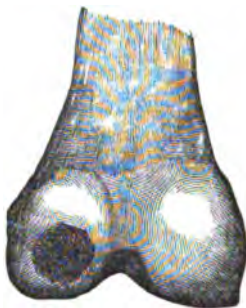
CASE X.—*Fungous Tendo-Synovitis in front of Ankle; Operation delayed; Extension to Tarsal Synovial Membranes.*—Mr. O'H. came under my care on the 10th of April 1885, with stiffness of his right ankle, following on a rather severe sprain received two years before.

Present Condition.—There is a diffuse swelling over the front of the ankle, slightly tender on pressure, but at no spot is fluctuation present. The tendons are embedded in a mass of semi-elastic tissue, but there is no evidence of bone disease. I advised free incisions, as he had already tried all the palliative measures, including firing, the marks of which were still present. The patient, however, preferred to again try counter-irritation, and I saw no more of him for four months, when he returned from the country with well-marked tarsal synovitis. I performed Syme's amputation, and found that a tubercular tendo-synovitis had led to a general inflammation of the synovial membranes of the foot and ankle. The bones were sound, but slightly inflamed. Here was a case in which early operation would have saved the foot, as it would have been possible to remove all the diseased structures at the time I first saw him.

SECTION B.—TUBERCULOSIS OF BONE.

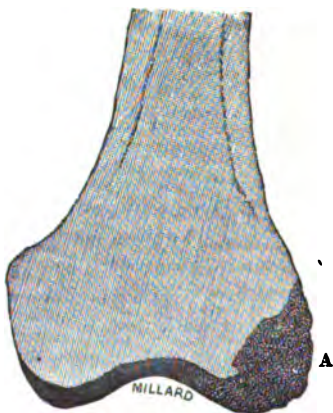
When tuberculosis occurs as a primary disease at the articular ends of long bones, it is all-important to attack it immediately, as it often develops with amazing rapidity, producing destructive joint lesions, some of which are illustrated by the following woodcuts. Fig. 3 shows where an intra-osseous tubercular deposit in the lower end of femur caused destruction of a limited portion of the articular cartilage of the outer condyle, rendering excision of joint necessary.

Fig. 3.



Now some months before starting of the limb occurred in this case, trephining of the outer condyle and drainage would, in all probability, have saved the joint. Fig. 4 shows how a tubercular growth along edge of inner condyle of femur became subchondrious.

Fig. 4.



and caused detachment of the articular cartilage, rendering resection necessary. This mass was first a small nodule on inner condyle, and, as seen in the woodcut at A, it invaded the bone as well as destroyed the cartilage. From the foregoing it will be seen that the process from the beginning is of a destructive nature, and, as pointed out by Ziegler, "The vessel formation does not keep pace with the tissue growth, there is no proper tissue formation, the granulations assume a fungous character, the pus corpuscles, epithelioid and giant cells, which under ordinary circumstances would have been used for the formation of connective tissue, combine now to form vesselless, and therefore short-lived, nodes." Such masses, compressing, infiltrating, and occluding vessels lead to destruction of the tissues in which they develop, or into which they may extend, with certainty if not rapidity.

The following cases—which have come under my care, and on which I have operated—show how intraosseous disease may be satisfactorily dealt with, and show the results we may expect from a thorough removal of local centres if this be carried out early:—

CASE I.—*Chronic Osteo-myelitis at Lower End of Tibia ; Trephining ; Cure.*—H. F., aged twenty-nine years, a farmer, came under my care on the 11th of February, 1882. He had just left another hospital, where he had been under treatment for eleven weeks for pain and swelling in the left ankle. He gave the following history:—In the winter of 1880 he got his left leg and ankle severely crushed by a horse falling and catching it under him. Swelling and pain set in immediately, and for six months he was unable to raise his foot. By the end of 1881 he was able to get about fairly well, but after much exertion the leg felt heavy, and a dull aching pain in the ball of the great toe and in the front of the ankle caused him much uneasiness. After a long walk on a cold damp night in October the aching gave place to a violent lancinating pain shooting downwards to the toes and upwards to the back of the thigh ; swelling again set in, and after trying every means he knew of getting rid of the pain, and without permanent result, he was sent by his attendant to hospital, where morphin was given to him sufficiently often to allay the pain, while poultices, stupes, counter-irritation, and strapping were tried locally. After eleven weeks of such treatment, he was recommended to have his ankle-joint removed, or to submit to amputation, as the entire ankle and foot seemed to be the seat of very extensive disease. On carefully examining the ankle I found the extensor tendons pushed forwards by a firm swelling, apparently of the tibia, which projected forwards, making the foot appear as if displaced backwards. The foot was cedematous, but there was no sense of fluctuation, nor was there

any irregularity of the bones; by fixing the tibia the fibula could be found to be rather loosely attached at its lower end. The distance between the tips of the malleoli was greatly increased, as also the antero-posterior measurement of the tibia. This thickening of the tibia extended upwards three inches. The entire surface of the lower two-thirds of the limb was red, glossy, pitted on pressure, and was extremely painful and tender. Unless when raised, there was throbbing in the foot and leg, which became unbearable if the patient stood up and allowed it to hang down. With this local condition existing so long, the patient had become worn to a shadow, was excessively irritable, with a small, quick, irregular pulse, rigours, frequent vomiting, and copious perspiration; temperature ranging from 99.6° in the morning to 103.4° in the evening. In such a condition I found him, and on the day after I cut down on the tibia on its inner aspect, raised the periosteum so as to admit a 16 mm. trephine, which I passed deeply into the bone. On withdrawing it blood oozed rather freely from the thickened bone around. This, however, soon stopped. On examining the piece of bone removed, I found that I had reached cheesy material. I now reflected light into the bone, and saw that a cheesy mass pressed into the trephine opening. With a scoop I cleared out the entire collection of tubercular material, which evidently started in the tibia, but had engaged the interosseous tibio-fibular ligament, and passed into the lower end of fibula. I plugged the cavity extending into the outer malleolus with iodoform gauze, applied antiseptic dressings, and had the limb elevated. During the evening there was some pain, and the patient complained of the pressure of the dressings. This inconvenience, however, soon disappeared, and on the third day it was found that the dressings were almost saturated with a sero-sanguineous discharge. The temperature fell from 103.4° to 101° immediately after the operation, and at no time after the second evening since operation did it reach 100° . The dressings were very carefully conducted; and on examining the ankle four weeks after operation, the wound was soundly healed, and the patient could perform all the movements of the foot with perfect ease.

I have frequently seen the patient during the past few years, and I am happy to say that although he works hard, carrying heavy weights and walking long journeys, and standing in fairs and markets, not the least trace of pain, stiffness, or uneasiness results from his exertions.

[To be concluded.]

ART. VII.—*Psychology in Ireland.** By THOMAS DRAPES, M.B.,
Resident Medical Superintendent, District Asylum, Ennis-
corthy.

If the title of this paper seems in any way pretentious, its aim, at least, is a modest one. It is meant to be nothing more than a contribution to a discussion as to how the advancement of that branch of science which is the special work of the Medico-Psychological Association can best be promoted in this country. I can hardly think that such discussion is altogether unneeded; and, though I should have preferred that the rôle of initiating it had been assumed by some wiser and more experienced head than mine, a few suggestions, even from an unimportant member, may not be considered out of place if they serve to evoke the views of others on a subject which I think is worthy of our serious attention.

To anyone who has attended the meetings of our Irish branch of late years two facts must have been painfully obvious—the paucity of attendance, and the scanty material which constituted the business of the Association; and I think both our past and present secretaries will bear me out in testifying to the difficulty of getting any material at all. Surely this is not a state of things which ought to exist; it is a state of things which every member should determine shall exist no longer. Where function is in abeyance, atrophy follows quick at heel. By stimulating function, decay, otherwise inevitable, may be arrested. That some process of stimulation is needed I think few will deny, nor will anyone, I think, even in his most optimistic moments, be venturesome enough to assert that the constitution of this branch of the Association is of a character which can be called robust.

That being so, if we are to maintain our vitality as a branch of the parent tree, our manifest duty is in the first place to ascertain, if possible, whether any causes exist which check its growth or undermine its vigour, and, in the next, to devise, if possible, means whereby such causes may be removed, or their ill-effects counteracted. If an analysis of these causes be attempted they might be classified into intrinsic and extrinsic—*i.e.*, those existing within ourselves, and probably the more remediable of the two, and those outside and independent of ourselves, many of which are quite beyond our control.

* Read at the Quarterly Meeting of the Medico-Psychological Association in Dublin, November 29, 1888.

I will take the last first, and of these I think the principal is our circumscribed numbers. Our muster-roll at best is meagre; we are essentially a "little flock." As far as I can learn from published statistics there are not more than eighty (if as many) medical men in this country directly or indirectly connected with institutions for the care of the insane; but that estimate includes visiting physicians to asylums, who do not, as a rule, make psychology a special study. Omitting these, the number of medical men whom we may regard as presumptive aspirants to the title of psychologist is something under fifty, and these scattered widely apart all over Ireland. That fact alone presents one difficulty, which, I fear, is almost insuperable, and it is accentuated by another fact, that of those gentlemen but thirty-five are members of the Medico-Psychological Association. When I mention the most depressing fact of all—that, even taking into account our dearth of members, the attendance at our meetings has been quite disproportionately small—we might well have but a faltering hope for the future of our branch.

Another difficulty resulting from the same conjuncture of circumstances, which, however, does not exist in the case of members located in Dublin, Belfast, and Cork, is our position of isolation. We who live in the country districts are almost absolutely cut off from any intercourse on the subject of psychology with brother-practitioners. Medical men practising in the country, as a rule, profess but little interest in, and devote but little time—many probably none at all—to psychological studies. For this they can hardly be blamed. The vast bulk of their work lies in a different sphere, and they naturally like to shape their studies in such a way as shall make them bear most practically upon their daily and hourly business, and I think the mode in which many of the certificates of insanity which reach us are filled demonstrates somewhat significantly what a subordinate position the subject is accorded in the estimation of the average medical practitioner. But this has the effect of leaving us in an unenviable solitude of thought. We have no weekly or fortnightly meetings of societies, where, in association with kindred minds, we may ventilate our views, or criticise those of others; no access to those venerated shrines where Science holds her court, dealing out her treasures of wisdom with impartial hand, sifting truth, and unmasking error, in the "fierce light" that beats about her throne. Absence of correctives encourages undisciplined habits of thought; absence of

facilities for interchange of opinions begets diffidence; and I have a suspicion that in many instances refusals to contribute papers at our quarterly meetings have been due to this diffidence, rather than to any actual unwillingness on the part of those solicited. Men who in the prosecution of their studies are shut up to themselves may be pardoned if they shrink from obtruding views or observations which, even to themselves, appear crude and incomplete, upon those who, living in the great centres of thought, are surrounded by opportunities and facilities of every kind for comparing, verifying, testing, and are generally regarded as the *élite* of the profession. I am free to confess that this has been a real difficulty in my own case—a difficulty which I cannot believe others do not share.

There is another respect in which we in Ireland are at a very serious disadvantage as compared with our English and Scotch *confrères*. I allude to the rarity with which we can obtain *post-mortem* examinations. This is a very grave drawback. Owing to the rooted prejudices and superstitious feelings of the Irish lower classes, autopsies can be only seldom and almost clandestinely made; and whereas in England the proportion of *post mortems* to deaths in asylums is sometimes as high as 90 per cent., and even higher, it is doubtful if in Irish asylums 5, or even 3, of any 100 patients who die there are the subjects of an autopsy. A great deal of excellent work might be done in this department if the door was not closed against us. But in Irish asylums the field of pathology is, practically, forbidden ground.

The position of the resident superintendent, again, is as much that of a manager as of a physician, and this entails numerous demands on his time for the mass of non-medical matters which he is bound to attend to. He is responsible, in the first instance, for all disbursements in connection with the institution; must examine all bills, and certify to their correctness; check accounts, &c.—in fact, he has to transact most of the duties usually delegated to a secretary. He has to see that the building and appurtenances are kept in proper repair, superintend a great deal of tradesmen's work, oversee farming operations, settle disputes with contractors, cater for the amusement of the patients, and so on. In this way the purely medical and clinical work, which ought to be his special and paramount business, is to a great extent defrauded of its proper share of attention. The absence of assistants in the great majority of Irish asylums renders it impossible to carry out any-

thing like complete or exhaustive examination of cases; for without some such help it would be scarcely practicable to carry out such processes as elaborate urine analysis, accurate and frequent thermometric notations, continuous observations of patients, as when under the influence of certain drugs, or in other conditions which will occur to everyone. For such operations as these the time at the disposal of the resident physician is, under present circumstances, wholly insufficient.

I will now touch, very briefly, on one or two difficulties which are rather of an intrinsic or personal character. And here, perhaps, I tread on rather delicate ground. The post of asylum superintendent is not without its special temptations. Relieved from the arduous duties, the anxiety, and worry of general practice, there is a temptation which presents itself more or less strongly to us all to regard our positions in the light of comfortable appointments, where we can securely enjoy an *otium cum dignitate* long sighed for in vain. No longer compelled to "scorn delights and live laborious days," the soul of the asylum physician is at least liable to the danger of lending a too-willing ear to the alluring whisper—"Take thine ease, eat, drink, and be merry." Far be it from me to hint, even for a moment, that any of my esteemed colleagues ever listen to such a suggestion; but the danger is there none the less, lurking like a snake in the grass, ever ready to exert its fatal fascination upon us, and paralyse our energies with the dull narcotism of its poisoned fang. Intellectual indolence may coexist with full vigour of mental and bodily activities of a lower sort; and a man may be a keen sportsman, a vivacious boon companion, or a shrewd man of business, without exercising—not even taking pains to conceal his aversion to—that sustained mental effort which is absolutely essential to intellectual operation of the highest class. To shrink from such an effort is a temptation which besets us all. Only thus can an explanation be supplied for the fact that, of tens of thousands of educated people, all but the merest fraction of the whole evince no concern or, at best, but a languid, interest in a subject which deals with some of the very highest problems that set men questioning, and which, to anyone who has once fairly and earnestly entered upon its study, presents attractions which are simply enthralling. Here, at least, we asylum physicians have advantages not possessed by others. Every day and hour of our lives we have opportunities of observing the working of the human mind under very varying and diverse con-

ditions—from that of the most perfect mental health to utter disintegration of intellect. In fact, so multitudinous and intricate are the phases under which mental phenomena manifest themselves to us that they excite bewilderment of thought in ourselves, and a feeling of helplessness to grasp their meaning and import.

Yet this is one region in which there is an opening for good work to be done, and as this paper would be but a barren one if at least an attempt were not made in it to offer one or two suggestions as to what lines of inquiry on the part of psychologists in Ireland are likely to be attended with a fair measure of success in promoting the advancement of that science in this country, I would propose, in the first instance, that we should spare no pains in the endeavour to analyse as completely as possible the psychical condition of each individual insane patient who comes under our notice. Can any of us plead guiltless to occasional carelessness in our examinations? A case has no exceptional features of interest apparent—we content ourselves with asking a few questions of a more or less routine nature, and then turn him over to the attendants, when he is apt to become, as it were, lost in the crowd of other patients, and may not attract our attention again until something exceptional occurs to alter the monotonous course of his insanity.

Again, I believe that with a little effort we might obtain more perfect histories of the antecedents—physical, moral, intellectual, and social—of the insane by exercising more patience, tact, and discrimination in our interviews with their relatives. These, I am well aware, are not infrequently given to maintain a mistrustful reticence, and even at times to practice actual duplicity, but I have seen such exhibit a totally changed demeanour when it was made clear to them that it was solely in the interest of the patient himself that they were being interrogated. This is a direction in which I think increased effort might be made with good results. To understand as fully as possible the natural bent of a patient's mind, the drift of his thoughts when in health, his likes and dislikes, favourite pursuits, whether of occupation or pleasure—in fact, his whole intellectual and moral physiognomy, is the surest means of understanding his present abnormal condition.

The action of remedies is a subject on which accurate observation is much needed; and asylum physicians have abundant opportunities of prosecuting researches of this kind. And I think that if some such system as that adopted for the “collective inves-

tigation of disease" were started amongst us, with the therapeutics of insanity as its subject-matter, every member of the Association could give a helping hand, and by the united efforts of all a harvest of interesting and practical information would be gathered in. On what a comparatively firm basis, for instance, would not the beneficial action or otherwise of the two drugs* to be brought under our notice to-day be placed if every asylum physician in Ireland were able to give the results of, say, a three months' systematic trial of these remedies in such cases as are supposed to be suited to their administration. If the field of pathology is closed against us, that of psychiatry at least is one in which we may at large expatiate.

It may be that some of our colleagues, who have up to this taken no active part in furthering the work of the Association, do not thoroughly realise that any responsibility attaches to them to utilise their knowledge and experience for the public good and the advancement of science in any larger way than carrying on the management of their particular asylums in however efficient a manner. Possibly if the broader view of what they owe to society and to science were pressed upon their consideration, they might be induced to swell the ranks of working members, at present so attenuated. If even half of those on the roll of the Association would agree to contribute one paper in the course of the year, one branch would be fairly productive and have a respectable amount of work to show.

To those possessed of even moderate skill in the use of the microscope the province of cerebral histology constitutes a profitable and most fascinating sphere of study, and one which, I have reason to believe, amongst Irish psychologists is not as industriously explored as it might be. And yet, when we consider that in the present day it is almost universally admitted by scientists that material changes of some sort—probably at first molecular, ultimately structural—are the invariable accompaniment, and in the opinion of some the actual cause, of functional disturbance, the importance to psychologists of a familiarity with the minute structure of the brain need scarcely be dwelt upon. And as, in respect to other organs, no physiology can be sound which does not pre-suppose and have for its basis accurate anatomical data, so the physiological psychology of to-day, if it is to have a truly scientific character, must rest upon well-ascertained facts as regards the fabric, plan of

* Sulphonal and Hyoscine.

arrangement, and general architectural features, macroscopic and microscopic, of the organ of mind. Otherwise it is liable to be tainted with much of the speculative element which enters so largely into that older pseudo-science which was the elaboration of metaphysicians. An increased industry in this direction on our part would be sure to meet with its reward.

It would extend this paper to unreasonable limits to specify at greater length other means of advancing our knowledge in mental science; and I merely offer as passing suggestions that such instruments as the ophthalmoscope and sphygmograph might be used with greater method and frequency in our examination of the insane; that a freer correspondence between individual members on doubtful points or matters of exceptional interest, of which one man may happen to have had larger experience than another, would tend to our own advantage as well as to that of our patients; and, lastly, that systematic habits of study are needful if our observations are to be made as fruitful as possible. There is a tendency amongst all classes at the present day—and medical men probably are no exception to the rule—to limit their reading in a great measure to periodical literature, and, while prepared to acknowledge to the full the inestimable value of such reading, when judiciously selected, to scientific progress, I think everyone will admit that it is possible to give it an inordinate amount of time and attention to the exclusion of the more complete and elaborate standard treatises on psychology brought out by such master-minds as Tuke, Maudsley, Mercier, Clouston, Sankey, and many others, whose names are “familiar in our mouths as household words.” Such works give a grasp of the subject such as no magazine article can ever convey. They induce a greater coherency of thought, and, by the very continuous effort which their perusal demands, exercise a bracing effect upon the intellect, which is only in a very subordinate degree accomplished by the more desultory forms of reading.

In conclusion, I trust that this sketch, of the imperfections of which no one is so fully conscious as the writer himself, will have even some small effect in directing the attention of the Irish members of our Association to some of the needs and possibilities of psychology in their own country. No one who does not esteem and love his work is ever likely to succeed in that work, and a subject which has been ennobled by the genius of some of the very highest intellects in past ages and in our own, is assuredly a worthy one

for the exercise of whatever share of talent has fallen to our lot. And who shall say that we are wholly destitute of the divine afflatus? If any are discouraged by the difficulties I have mentioned—difficulties of no imaginary construction—resulting from our restricted numbers and isolated position, they may find some solace in the reflection that, in a larger history than that of psychology, progress—or at least the great impulses which initiated its leaps and bounds—has usually been mainly the work of the few, and not of the many, and that while character is amplified and consolidated amidst the rush and bustle, the fulness of existence, the multitudinous and varied interests which lend to city life its own peculiar charm, a poet of no mean order has given us the assurance that the foster-mother of genius is solitude:—

Es bildet ein Talent sich in der Stille,
Sich ein Character in dem Strom der Welt.

Is it presumption for us to take this crumb of comfort to heart? To generous spirits alone we look for a reply.

ART. VIII.—*Anæsthetics.* By GEORGE M. FOY, F.R.C.S.I.;
Surgeon to the Whitworth Hospital, Drumcondra.

“**TAKING** it all in all, it (methylene) is the handiest, readiest, and best of the whole of the anæsthetic series.” Such is Dr. Richardson’s summary of Sir Spencer Wells’ opinion of methylene—one of the few chemicals, besides ether and chloroform, that have come into use as general anæsthetics.

Since the introduction of the drug it has been largely used both by Dr. Richardson and Sir Spencer Wells, and the name has been abbreviated from bichloride of methylene to that of methylene.

The chemical is one of the marsh gas (CH_4) series, in which chlorine is made to displace the hydrogen of the compound. Anæsthetic properties are claimed for the whole series, from monochloride of methan to the tetra-chloride of carbon, and the following brief account of methan, methylene, or methyl, also called methyl hydride, will assist in showing the relationship between the different chlorides of methan, of which chloroform is a member.

Methan has the composition CH_4 , it is a colourless, inodorous gas, commonly called “Marsh Gas,” and has been known from the earliest ages. Basil Valentine recognised its presence in mines; Libarius very fully notices it, and wrote of its explosive property; Volta, in 1777, pointed out its inflammable character, and in 1785

Berthollet described not only its physical properties, but also its chemical composition.

The chlorides of methan (CH_4) are four. Methyl chloride (CH_3Cl), the first of the series, contains one atom of chlorine which has displaced an atom of hydrogen, and so differs from methan. The chloride is prepared as a gas in Paris, and compressed into iron cylinders in the form that nitrous oxide is generally supplied to dentists. As the gas is emitted from cylinder, it is mixed with a stream of atmospheric air, and being applied as a jet, it freezes the part by the intense cold it produces.* It was discovered by Dumas and Péligot, and advantage of its power of producing artificial cold has latterly been turned to account in medicine. In the year 1887, at a meeting of the Société Médicale des Hôpitaux, M. Deboe read a paper on the use of chloride of methan (CH_3Cl). Since 1884 he had treated one hundred and fifty cases of sciatica with the chemical, and found only five per cent. of the cases not benefited by it. Lumbago and neuralgia are quickly cured by it, as is also facial neuralgia. Patients whose skins are irritable, and those suffering from diabetes or albuminuria, are unsuitable subjects for its application. The drug may be sprayed on the face.

Mixed with ether, M. Raison tried the spray in M. Joffroy's ward at the Salpêtrière Hospital. The pains of locomotor ataxy were relieved by the refrigeration, the spray affording marked relief at the moment of the painful attacks. These medicaments methodically administered for a long time result in the general improvement in the state of the patient, the pains becoming less frequent and less severe. M. Raison^b has observed that both ether spray and that of the chloride of methyl do not give good results in *tabes dorsalis* to patients who abuse the use of morphin.

Methyl dichloride, or bichloride of methylene (CH_2Cl_2), differs from the chloride in having one atom more of chlorine, and one less of hydrogen. The chemical was introduced to the profession as an anæsthetic, through the columns of the *Medical Times and Gazette* in 1867, by Dr. Richardson, who in 1868 made a report on its anæsthetic properties to the Section of Physiology of the British Association for the Advancement of Science.

Bichloride of methan, or methylene, has the disadvantage of being both expensive and difficult to preserve unchanged in

* Martindale and Westcott.

^b The London Medical Record, p. 64. 1887.

its chemical composition, and as many of the samples sold as bichloride of methylene are nothing more than a mixture of chloroform and alcohol, there is much difficulty in deciding on the merits of the drug.

In the nineteenth number of the *Aselepiad*, published last autumn, Dr. Richardson reiterates his high opinion of the anæsthetic, and republishes its claims to recognition as a good general anæsthetic.

In his report to the British Association, Dr. Richardson wrote as follows:—"In my last report I described that the bichloride of methylene (CH_2Cl_2) was an excellent anæsthetic substance, and for many reasons preferable to chloroform. I have since confirmed this view fully by practice. After subjecting myself to the action of the vapour to the production of perfect insensibility, I ventured to administer it for surgical purposes on the 15th of October last, 1867. The sleep produced was of the deepest and gentlest character, and the operation performed by Mr. Spencer Wells, and which lasted thirty-five minutes, was quite painless. One trifling difficulty only stood in the way—the air of the room being warm, and the fluid having a low boiling-point, the water from the breath of the patient, with which the inhaler was saturated, became frozen, and was somewhat troublesome." The difficulty occasioned by the low boiling-point of the liquid has been overcome by the use of Junker's inhaler, by means of which he generally produces "good narcotism in five minutes."

The physiological effect of the drug differs, according to Dr. Richardson, from that of chloroform in several particulars, to wit:—"The anæsthetic sleep is produced more quickly, and when produced is more prolonged. On the other hand, recovery, when it commences, is far more rapid; indeed, the period of recovery, according to my experience, is never extended over four minutes, and there are no tedious or painful after-effects. "When animals are allowed to sleep to death in vapour of bichloride of methylene, the lungs are found containing blood on both sides. In this respect the vapour acts differently from both chloroform and ether."

The preparation used in Dr. Richardson's cases is that of Messrs. Robbins, which is manufactured by the action of chloroform on zinc. Its high price is due to the difficulty of preparing it, owing to its low boiling-point.

In an address delivered before the British Medical Association at Manchester, on the 9th of August, 1877, by T. Spencer Wells (now

Sir T. Spencer Wells), F.R.C.S., he thus expressed himself on the advantages of methylene :—"In 1872 I made known my opinion that all the advantages of complete anæsthesia could be obtained by the use of bichloride of methylene, or chloro-methyl, and with fewer drawbacks than by any other known anæsthetic. That was the result of an experience of five years, and of 350 serious operations. The experience of the five succeeding years up to the present time, with more than 600 additional cases of ovariectomy, and many other cases of surgical operations, has fully confirmed me in this belief. Given properly diluted with air, the vapour of chloro-methyl has, in my experience of ten years, with more than 1,000 operations of a nature unusually severe as tests of an anæsthetic, proved to be, without a single exception, applicable to every patient, perfectly certain to produce complete anæsthesia, relieving the surgeon from all alarm, or even anxiety, and its use has never been followed by any dangerous symptom which could be fairly attributed to it."

Sir Spencer uses Junker's apparatus for the administration of the bichloride.

American surgeons gave the anæsthetic a trial. Mr. A. R. Strahan, of New York (*Medical Record*), after some successful experiments with the vapour on himself, used the bichloride in a surgical case, and in one of labour, with success. The surgical case necessitated anæsthesia to be continued for three-quarters of an hour, and an ounce and a half of methylene was used. In the case of labour a drachm and a half of the bichloride was sufficient to anæsthetise the patient. Both in the surgical and in the labour case the drug was administered from a folded napkin.

Dr. Dudley Wilmot Buxton^a writes that "Methylene acts precisely like chloroform, and its use is fraught with dangers which differ not in kind, but in degree, from those present when chloroform is used."

Dr. Buxton does not credit bichloride of methylene (CH_2Cl_2) with anæsthetic properties, and he quotes the opinion of the French chemists—Regnault and Villejeau, to wit—"That the pure substance (bichloride of methylene) is not an anæsthetic, but a powerful convulsant, and proves fatal to animals in a few seconds."^b Believing the methylene of commerce to be nothing more than

^a *Anæsthetics; their Uses and Administration.* London: H. K. Lewis, 136 Gower-street, W.C. 1888.

^b P. 104, *ut supra*.

"diluted chloroform," he naturally directs that "both the respiration and the pulse must be sedulously watched, and the utmost vigilance displayed to avoid accumulation of vapour in the lungs."

Dr. Henry M. Lyman* says the effects of the bichloride of methylene (CH_2Cl_2) "are very similar to those of chloroform inhalation." He ascribes the evanescent character of its effects to its low boiling-point, and makes the following statements, to wit—"Four cubic centimetres are sufficient to produce insensibility. No unpleasant sensations ordinarily accompany the return to consciousness. Vomiting is less frequent than after chloroform or ether."

Anything like an accurate estimate of the percentage of deaths caused by the bichloride is almost impossible to make. Dr. Andrews, of Chicago (1877) gives one death from bichloride of methylene in 7,000 cases; Dr. Coles, of Virginia, reported two deaths in 10,000 inhalations of the bichloride. But until we know what drug was really used, the statistics are worthless. Was the agent used a mixture of chloroform and alcohol, or pure bichloride of methylene?

Martindale and Westcott^b write of methylene:—"A commercial sample (bichloride of methylene) had sp. gr. 1.326; it is said to be chloroform reduced to this density by alcohol."

Until a good commercial sample of the bichloride of methylene (CH_2Cl_2) is procurable at a reasonable price, the anæsthetic will remain comparatively unknown. The advantages claimed for it by its friends are not sufficient to override the question of cost.

Trichloride of methan, or methyl (CHCl_3), is the familiar anæsthetic chloroform. It differs in its chemical composition from the bichloride in having one atom more of chlorine, and one less of hydrogen.

Tetra-chloride of methan, or methyl-carbon tetra-chloride (CCl_4), has four atoms of chlorine, all the hydrogen of the base methan having been displaced by chlorine. The drug much resembles chloroform. It is a transparent, colourless liquid of a sp. gr. 1.599; boiling-point, 170.6°F . (M. Regnault); vapour density, 5.33. It

* *Anæsthetics and Anæsthesia*. By Henry M. Lyman, A.M., M.D.; Professor of Physiology and Diseases of the Nervous System in the Rush Medical College, Chicago, Ill. *International Encyclopedia of Surgery*. Vol. I. London: Macmillan & Co. 1882.

^b *The Extra Pharmacopœia*. Fifth Edition. London: H. K. Lewis, 136 Gower-street, W.C. 1888. Page 249.

has an agreeable aromatic flavour, and an odour not unlike that of the quince (P. Smith).

The chemical was discovered in 1839 by M. Regnault, and its anæsthetic properties were made known by Drs. A. E. Sansom and John Harley in 1864.* They recorded the results of their experiments in Dr. Sansom's work on "Chloroform," published in 1865. Sir James Young Simpson, independently working, also found that the tetra-chloride—for which he suggested the name, "Chlorocarbon"—had well-marked anæsthetic properties (*The Medical Times and Gazette*, December, 1865).

As might be expected from the chemical composition of the tetra-chloride of methan, its effects much resemble those of chloroform, and Sir J. Y. Simpson thus writes of it:—"Its (tetra-chloride of methan) primary effects are very analogous to those of chloroform, but it takes a longer time to produce the same degree of anæsthesia, and generally a longer time to recover from it. . . . The depressing influence of chloro-carbon upon the heart is greater than that of chloroform, and consequently I believe it to be more dangerous to employ as a general anæsthetic agent. In a case of midwifery, in which it was exhibited . . . for above an hour, with its usual anæsthetic effects, the pulse latterly became extremely feeble and weak. In another, in which it was exhibited by Dr. Black, the patient, who had taken chloroform several times before, was unaware that the new anæsthetic was different from the old; her pulse continued steady and firm, although she is the subject of valvular disease of the heart. The surgical operations in which I have used chloro-carbon have been the closure of a vesico-vaginal fistula, the division of the cervix-uteri, the enlargement of the orifice of the vagina, and the application of potassa fusa to a large, flat nævus upon the chest of a young infant. In all these cases it answered quite well as an anæsthetic. The child did not waken up for more than an hour and a half after the employment of the caustic, which was used so as to produce a large slough. Its pulse was rapid and weak during the greatest degree of anæsthetic sleep. . . . Chloro-carbon, when applied externally to the skin, acts much less as a stimulant and irritant than chloroform."

Tetra-chloride of methan is recommended as an anæsthetic in nervous headache, neuralgia, tic douloureux, toothache, pains of dysmenorrhœa, and the heaviness, which is apparent immediately

* British and Foreign Medico-Chirurgical Review, 1867.

on awakening, rapidly passes away. Dr. Lauder Brunton^a states that it does not produce any bad after-effects.

The list of chemicals that have been introduced as general and local anæsthetics since Guthrie discovered chloroform is a very long one, and the following list, from Ashhurst's "Surgery," will show that many drugs were tested in the search for a substitute for the much-abused chloroform and unpleasant smelling ether:—

Butylic hydride, butane, diethyl (C_4H_{10}), obtained by fractional distillation from petroleum dissolved in naphtha, the solution constitutes *rhigolene*—a colourless liquid which evaporates with great rapidity, boiling in the palm of the hand. It has been used for the production of local anæsthesia by the evaporation of its spray.

Ethylene, olefiant gas, elayl, heavy carburetted hydrogen (C_2H_4) has been tried as an anæsthetic. Continued inhalation produced dilatation of the pupils, muscular relaxation, vomiting, and death.

Amylene, pentylene, pentene (C_5H_{10}). "The condition of insensibility produced by the inhalation of its vapour is less persistent than the effect of chloroform. Muscular spasms are likely to occur under its influence. Snow administered it in more than one hundred cases; but two deaths occurring as a consequence of its use, it was entirely abandoned."

Nitrate of ethyl,^b a transparent, colourless liquid, with a sweet taste and an agreeable odour; sp. gr., 1.112. Is pleasant and easy to inhale, and possesses very rapid and powerful anæsthetic properties. A small quantity, such as fifty or sixty drops, when sprinkled on a handkerchief and inhaled, produces insensibility after a few inspirations. But during the brief period which elapses before the complete anæsthesia is induced, the sensations of noise and fulness in the head are in general excessive, and much headache and giddiness have usually followed its employment, and persisted for some time.

Aldehyde (C_2H_4O). Professor Poggiale, of Paris, recommended aldehyde as an anæsthetic superior to ether and chloroform. It, however, produces much bronchial irritation, and an insufferable feeling of dyspnœa. "The sensations of difficult respiration and constriction of the chest which the vapour produced, resembled precisely those of a severe fit of spasmodic asthma." It is stated to act as a depressant to the heart.

^a Text-Book of Pharmacology, Therapeutics, and Materia Medica. By T. Lauder Brunton, M.D., D.Sc., F.R.S. Third Edition. London: Macmillan & Co. 1887.

^b Sir J. Y. Simpson. Anæsthesia. Edinburgh: Adam and Charles Black. 1871.

Bisulphuret of carbon (CS_2) has been used as an anæsthetic. Simpson^a found it to be a very rapid and powerful anæsthetic, though difficult to manage. In some patients it produced depressing and disagreeable visions, and headache and giddiness in all. With the great majority of patients, however, its very offensive smell would preclude its use.

Besides these preparations many mixtures have been suggested for use. Turpentine has been put forward as a valuable addition to chloroform, but the principal mixtures in use are those of chloroform and alcohol, or chloroform, ether, and alcohol. Thus, the A. C. E. mixture consists of—

Alcohol	-	-	sp. gr., .838, one part.
Chloroform	-	-	sp. gr., 1.497, two parts.
Ether	-	-	sp. gr., .753, three parts.

Mix.

Messrs. Martindale and Westcott^b recommend the following formula as preferable to that of the A. C. E., which was originally proposed by Dr. George Harley, and recommended by the Anæsthetic Committee of the Royal Medico-Chiurgical Society of London :—

Absolute Alcohol	-	sp. gr., 0.795, one volume.
Chloroform	-	sp. gr., 1.498, two volumes.
Ether	-	sp. gr., 0.720, three volumes.

The mixture has a specific gravity of 1.01. "The three ingredients are intended to be mixed in such proportions that, when the quantities of each, taken separately, are exposed to the air in watch-glasses, they shall completely evaporate in the same time."

Billroth's mixture :—

Chloroform	-	-	- three parts.
Alcohol	}	-	-
Ether			
			- of each one part.

Mix.

The Vienna mixture :—

Chloroform	-	-	- one part.
Ether	-	-	- three parts.

By weight, mix.

^a *Uti supra.*

^b Extra Pharmacopœia. 1888. Page 116.

Dr. Dudley Buxton* gives the following formula for methylene (Regnault and Villejean):—

Alcohol	-	-	-	one part.
Chloroform	-	-	-	four parts.
Mix.				

To diminish the risk in cases of cardiac asthenia, the addition of nitrite of amyl to chloroform in the proportions of two drachms of the nitrite to a pound of the chloroform was recommended; the combination did not, however, become popular, and has almost dropped out of use.

Ethidene dichloride, dichlorethan, monochlorethyl-chloride, chlorinated chloride of ethyl (CH_3CHCl_2) was first prepared by Regnault,^b by acting with chlorine on ethyl chloride.

It is an ethereal-smelling liquid, having a sweet and biting taste; sp. gr., 1.2. It boils at 135° to 150° F., and at 0° has a specific gravity of 1.2044, and is a very stable compound.

It was first used as an anæsthetic by Dr. Snow, and is said by some to be a much safer anæsthetic than chloroform.^c “Compared with chloroform, dichloride of ethidene is pleasanter, more rapid in action, causes no excitement during or after administration, more rapid recovery from it, and altogether there is less danger attending its use. Children require about one drachm, adults four or five drachms.”—Binz.

This very favourable report has not convinced the profession that ethidene possesses any particular advantages over chloroform.

Dr. Sydney Ringer^d writes, “I find that chloroform and ethidene dichloride about equally poisonous to the heart’s substance.”

The Glasgow Committee of the British Medical Association, on the Action of Anæsthetics, reported (*British Medical Journal*, 1879) that “Ethidene did not produce sudden or unexpected depressions of the blood-pressure.” The anæsthetic has, however, been credited with at least two deaths, and it has never come into general use.

In 1828 Dr. Hickman^e suggested the inhalation of carbonic acid

* *Anæsthetics: their Uses and Administration*. London: H. K. Lewis, 136 Gower-street, W.C. 1888.

^b Roscoe and Schorlemmer. Vol. III. P. 2.

^c *Extra Pharmacopœia*. Fifth Edition. 1888.

^d *A Handbook of Therapeutics*. By Sydney Ringer, M.D., F.R.S. Twelfth Edition. London: H. K. Lewis, 136 Gower-street, W.C. 1888.

^e *Anæsthesia*. By Sir J. Young Simpson. Edinburgh: Adam and Charles Black. 1871.

as a means of producing insensibility in surgical operations. Simpson refers to carbonic acid gas as "a powerful general anæsthetic when inhaled," and he considered it superior to chloroform as a topical anæsthetic to the vagina and uterus, in that it produces no sensation of heat or burning. He found it particularly useful in dysuria, dysmenorrhœa, and in carcinoma of the genital organs.

The anæsthetic effects of carbonic acid gas in uterine diseases were, however, made public in 1835 by Dr. Dewees,* of Philadelphia, who wrote as follows:—"We have enabled several patients to derive much comfort, as well as temporary relief (in carcinoma uteri), from the extrication of carbonic acid gas within the cavity of the vagina, by means of a flexible tube of sufficient length and size, attached to the mouth of a bottle, in which there is mixed, diluted sulphuric acid and the carbonate of lime."

Sir James Young Simpson quotes Mr. Hay, of Leeds, as having used, in a case of diarrhœa, carbonic acid gas as a local sedative to the lower bowel as long ago as 1772. Dr. Percival, of Manchester, published "two similar instances of the salutary effects of mephitic air thus administered as an enema."

Dr. Henry found it to act as a good local anæsthetic in two cases of dysentery, and Mr. Parkins^b used it as a remedy both in diarrhœa and dysentery.

The anæsthetic properties of carbonic oxide gas did not escape the notice of Beddoes, and in his article, "Factitious Airs," he gives Dr. Ingenhouz's experiments, in which the pain-killing power of the gas is satisfactorily shown.

Fumigations from aromatics were employed by the ancients to allay pain, and Sir J. Y. Simpson^c was of opinion that the anodyne action of the aromatised vapour was principally due to the presence of carbonic acid gas:—"The combustion of dried plants and vegetable substances," writes Simpson, "gives rise to the formation of carbonic acid gas, and the fumigations of the ancients, when they acted beneficially, probably acted much more by the mere topical application of this gas than by anything aromatic or medicinal contained in some of the burnt ingredients."

Hippocrates (de Morb. Mulier, 11, 24) directs us, in cases of cancer of the womb, to "try the effect of fumigating the womb by

* Treatise on the Diseases of Females.

^b London Medical Gazette. Vol. XVIII.

^c *Ut supra*.

introducing into it a pipe attached to a pot. Steams from garlic and the fat of seals are to be applied in this manner."*

Galen used cassia, cinnamon, and ammonium for fumigations.

The idea that carbonic acid gas was the principal medicinal agent in the fumigations of the ancients is, however, too far-fetched to satisfy modern readers.

Almost all local anæsthetics have given place either to cocain or the hypodermic injection of morphin, though in carcinoma uteri the use of carbonic acid gas is fairly entitled to consideration.

(To be continued).

THE BIRMINGHAM MEDICAL REVIEW.

DURING the past sixteen years an effort has been made to maintain a Journal which should efficiently represent the current state of Medical Science and Practice in the Midland District of England, and to a large extent this has been successfully accomplished by the publication of the *Birmingham Medical Review*. We understand that circumstances have brought about a change in the management of the *Review*, and that Dr. Robert Saundby, Mr. Lawson Tait, and Dr. Gilbert Barling have undertaken the responsibility of editing it for the future. In order to enhance the value of the *Review*, and to make it more in keeping with the requirements of the present day, the editors propose to increase the size of each number from 48 to 64 pages, and at the same time to reduce the price from twelve to six shillings per annum, post free. We wish this venture every success.

CONGENITAL ABSENCE OF LEFT KIDNEY.

At a meeting of the San Francisco County Medical Society, Dr. W. W. Kerr reported a case of congenital absence of the left kidney. The *post-mortem* examination revealed the absence of the left kidney or any trace of it, while the right was uniformly hypertrophied to nearly twice the normal size. The case was interesting as showing how well one kidney could, under ordinary circumstances, perform the functions generally carried on by two; and also as the discharge of urinary functions by one organ would require a higher blood-pressure than normal. Such cases would indicate that the cardio-vascular changes in Bright's disease were due to a rise in blood-pressure throughout the body, probably caused by action of retained material upon the vaso-motor centres, and not simply to rise in renal pressure.—*Sacramento Medical Times*, Vol II., No. 11.

* Paulus Ægineta. Lib. iii., sect. LXVII.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

RECENT WORKS ON MATERIA MEDICA AND THERAPEUTICS.

1. *Therapeutics: its Principles and Practice.* By H. C. WOOD, M.D., LL.D., Professor of Materia Medica and Therapeutics, and Clinical Professor of Diseases of the Nervous System, in the University of Pennsylvania. The Seventh Edition of *A Treatise on Therapeutics*, re-arranged, re-written, and enlarged. London: Smith, Elder, & Co. 1888. 8vo. Pp. 908.
2. *Elements of Pharmacy, Materia Medica, and Therapeutics.* By WILLIAM WHITLA, M.D., Physician to, and Lecturer on Clinical Medicine, Belfast Royal Hospital; Consulting Physician to the Ulster Hospital for Women and Children; Member of the Senate of the Royal University, &c., &c. With Lithographs and Woodcuts. Fifth Edition. London: Henry Renshaw. 1889. 8vo. Pp. 648.

1. PROBABLY no branch of medical science has made such rapid strides in recent years as Therapeutics, using the term in its most comprehensive sense so as to include remedial measures like massage, metallo-therapy, the feeding of the sick, and the dietetic treatment of constitutional states or diatheses. Hence it happens that works on Therapeutics quickly become obsolete, even though their editions may not be exhausted. Such a fate has not overtaken Dr. Wood's excellent treatise. The sixth edition of it appeared in 1885, but was sold off in three years, rendering it necessary for Dr. Wood to undertake a revision of the work so as to embody in it the most recent researches on therapeutics. The author has spared no pains to make the present edition a standard authority—he himself admits in the preface that its preparation has necessitated a careful study by him of nearly six hundred memoirs.

The work is divided into two parts. The first of these treats of remedies, remedial measures, and remedial methods which are not

drugs, and includes chapters on massage, the feeding of the sick, and metallo-therapy; on the treatment of systemic states, including exhaustion, corpulence, and lithiasis; on caloric, and on electricity. Dr. Wood's remarks on liquid meat foods and artificially digested foods will commend themselves as both in accordance with common sense and eminently practical; and we heartily concur with him when he says that "in typhoid fever I have seen skilful practitioners overlook the real cause of an excessive tympany or an increased diarrhoea, and continue the overfeeding while attempting to relieve these symptoms by medicine" (page 27).

The second part of the work is devoted to "drugs." The classification he adopts is into systemic and extraneous remedies. The former he subdivides into general and local remedies; general remedies forming three "orders"—namely, nervines, cardiants, and nutriants. The word "cardiant" seems rather to strain the rules of etymology, but the author defines a "cardiant" as a drug which affects the circulation.

An appendix gives full information about weights and measures and contains ten diagrams of motor points for use in the application of electricity for therapeutical purposes. The volume closes with two indexes—one, a general index; the other, an index of diseases with appropriate remedies.

It goes without saying that full information is given about all new drugs which have come into use of late years. In fact the volume includes very complete bibliographical notices of such drugs as hydrastin, strophanthus, spartein, adonidin, iodol, ichthyol, paraldehyde, urethan, hypnone, amylene hydrate, methylal, oil of sandal-wood, kawa, extract of malt, papain, antifebrin, salol, bethol, thallin, kairin, acetphenetidin, lanolin, saccharin, sulphuretted hydrogen, &c. Dr. Wood observes that the reports in regard to kairin have been so unfavourable that it has not been used to any considerable extent in practical medicine. It has no advantages over antipyrin and antifebrin, and appears to be more dangerous, causing cardiac depression, as well as a peculiar lividity and general cyanosis, with threatening collapse.

As to cocaïn, caffeïn, antifebrin, and antipyrin, the reputation of which is now finally established, our knowledge has been brought up to date in this edition of Dr. Wood's work. Nor has the author neglected to revise and improve his descriptions of still older members of the *materia medica*.

Enough has been said to convey that we have formed a high

opinion of the work before us. We look upon it as one of the very best contributions on the subject of therapeutics, and for clearness of style and systematic arrangement it contrasts most favourably with kindred works which have been published nearer home.

2. We welcome the appearance with the New Year of another edition of Dr. Whitla's deservedly popular and standard text-book. In June, 1887, Dr. Whitla published, as a fourth edition, the remaining numbers of the large issue of 4,000 copies which formed the third edition, and to which he then added a new appendix.

The present issue is the result of careful revision and addition. The author has re-written a considerable portion of the work, and on almost every page evidence is forthcoming that he has attempted, and not in vain, to bring it up to the existing state of our knowledge in every particular. Nearly 100 pages of entirely new matter have been added, although the book is as handy as ever in respect to size. This desirable result has been attained by a new arrangement of type—especially in Part III., on the "*Materia Medica*"—and by careful pruning in places.

We notice under the heading "*Prescription Reading*," a number of facsimile prescriptions by men of world-wide reputation, such as Charcot, Unna of Hamburg, Lawson Tait, Burney Yeo, Sir Morell Mackenzie, Lauder Brunton, and Oliver Wendall Holmes. The intrinsic value of some of these prescriptions is small, as when Mr. Lawson Tait prescribes $7\frac{1}{2}$ minims of solution of perchloride of iron in an ounce of infusion of quassia to be taken thrice daily; but the facsimiles have their use in making students familiar with the structure of a prescription, and the different modes of expression adopted by physicians in writing their orders. Dr. Whitla has gone to great trouble in rendering into Latin these orders or "signatures." We question whether it was worth while to do this, as the most eminent physicians and surgeons of the present day are content to write in the vernacular. Even in the case of the facsimiles given by Dr. Whitla we observe that Charcot writes in French, Unna in German; Lauder Brunton, Lawson Tait, and Sir Morell Mackenzie in English. Excellent as may be the Latin, the following reads awkwardly—not to use a stronger word:—"*Solutio aspergenda in caput, per horæ partem sexagesimam, instrumento ad aspergendum facto horâ somni et mane ante vestiendum, ut Pityriasis Capitis sanetur, quæ semper acnen concomitatur.*"

How much simpler is Unna's German :—" *Mittelst des Zerstäubers Morgens und Abends den Kopf eine Minute zu besprühen, zur Beseitigung der die Acne regelmässig begleitenden Pityriasis Capitis*" ? " *Instrumentum ad aspergendum factum*" is ingenious, but "spray-producer" is more to the point. At page 110, Dr. Whitla himself writes :—"The use of long and elaborate Latin phraseology is to be condemned in prescribing, and the student, when he feels any difficulty in expressing himself in this tongue, had certainly better fall back upon his English when writing the signature."

The author's justification is, no doubt, to be found in the lamentable ignorance displayed by students of pharmacy when attempting to read prescriptions written in Latin. At a recent examination in Dublin a candidate was asked to translate this "signature" :—" *Vesicatorium hujus magnitudinis sterno applicandum per quinque horas.*" He managed to scramble on until he came to the word "*sterno*," which he rendered by an expression more forcible than elegant, of which "the gluteal region" may be regarded as a synonym.

In addition to a short, but valuable, article on "Incompatibility," at page 67, Dr. Whitla quotes, with approval (at page 104), a summary of incompatibilities taken from the "Art of Dispensing," by the Editor of the *Chemist and Druggist* for 1888. Included in this list we find a mention of tincture of strophanthus, which "in water undergoes hydrolysis, with formation of a toxic substance."

One of the most valuable sections of the work is that on "Therapeutics" (Part IV.), which has been well brought up to date. The same remark applies to Part V., on "Non-Official Remedies," which now runs to nearly 100 pages, compared with 70 in the third edition. Most of the new remedies find a place in this section, and the information given about them is as trustworthy as it is succinct.

In concluding this bibliographical notice, we take the opportunity of congratulating Dr. Whitla on the conspicuous success he has achieved in the publication of one of the ablest text-books with which it has been our good fortune to meet in the course of our editorial labours.

A Text-book of Physiology. By M. FOSTER, M.A., M.D., &c.
Fifth Edition. Largely revised. Part I. London: Macmillan
& Co. 1888. Pp. 352.

WHEN in the space of twelve years a book reaches the fifth edition and has been twice reprinted, and when, in addition, it has been translated into more than one foreign language, it may be considered to have passed beyond the region of criticism. There is, therefore, little for us to do further than to call the attention of our readers to the appearance of a new and improved edition of a work which has justly become classical, and which is generally admitted to be incomparably the best text-book of physiology in the English tongue.

Considerable changes will be noticed in this edition. The book, instead of being in one volume, will now consist of three. The additions are made partly by the introduction of such histological matter as is necessary for the student to know before approaching the study of the functions of the different organs, and partly by a more extended explanation of fundamental and important points. The great extension which the work has undergone will be seen when we say that the part of the first edition corresponding to the present volume—and including the blood, the tissues of movement, and the vascular mechanism—occupied only 154 pages. The general plan of the book, however, remains the same as before, and indeed it is so logical, so scientific and convenient, that it is hard to see what alteration could be made in it with advantage.

It is unnecessary for us to call attention to the clearness and attractiveness of the style; the masterly exposition of difficult problems; the admirable judgment with which the more and less important points receive each their due weight. All these characteristics of former editions are to be met with in even a higher degree in the present one.

The book is certainly not one to be recommended to a student who wants only to cram himself with cut and dried facts for the purpose of passing one of the numerous bad examinations in physiology which are now so common. But to a student who wishes to understand the science on which the whole of medicine rests, who wants not merely to know the facts, but the reasoning and experiments on which the facts rest, there is no work which will give more satisfaction than this.

It is, however, not only to students that it is to be commended.

There is no one interested in physiology who can fail to be fascinated by the beautiful narrative style in which the whole book is written, by the thorough grasp of the subject displayed by the author, and by the clearness and pointedness of the demonstrations.

There are, however, two little matters to which we find exception. We should prefer to have had the entire work at once rather than to receive it in instalments. There is something formidable in a three-volume work, even although the volumes may not be very thick; and many will be deterred from commencing the first volume when the date of the appearance of its successors is altogether uncertain. Secondly, we think it a pity that in a book such as this there is no reference to authorities. We all know the bad use students make of the names of authors, and we feel that this is a good reason for keeping the authorities out of the text. But there are many readers who are not mere students, and who would gladly follow up more fully the study of many of the subjects necessarily but lightly touched on in a text-book. To them a list of the most important and recent papers on the subjects treated of in each chapter would be of very great service. If the list were placed separately at the end of the chapter it would not lead the students into bad ways.

Clinical Lectures on Diseases of the Urinary Organs. Delivered at University College Hospital. By SIR HENRY THOMPSON. Surgeon Extraordinary to his Majesty the King of the Belgians. Eighth Edition. London: J. & A. Churchill. 1888. 8vo. Pp. 470.

THIS classical work has undergone a process of evolution through eight editions, and now appears as a portly volume of nearly 500 pages. The first edition, published in 1868, was made up of twelve lectures only; in the last (the seventh) edition there were twenty-six lectures, and the present one contains thirty-two lectures, comprising the whole course delivered by the author at the University College Hospital up to the session of 1887-88.

We learn from the preface that "the chief additions in the present issue relate to the suprapubic operation for stone and for tumour; to the results of digital exploration of the bladder; to the most recent modes of affording relief by operation in cases of advanced prostatic disease; to the latest operative treatment for tumours of the bladder." The volume also embraces a *résumé* of

the author's entire experience of operations for calculus, made up to the end of the year 1886, numbering about 900 cases. From this it will readily be seen that the work has been kept well abreast of the recent advances in operative surgery relating to the urinary organs. It is pleasantly written, the paper and printing are good, and neither printer nor publisher has spared pains to produce a work worthy of the high reputation of Sir Henry Thompson.

Hunterian Lectures on Tension, as met with in Surgical Practice; Inflammation of Bone, and on Cranial and Intracranial Injuries. Delivered before the Royal College of Surgeons of England, June, 1888. By THOMAS BRYANT, F.R.C.S.; M.Ch. (Hon.), Roy. Univ. Irel.; Vice-President and Member of the Court of Examiners of the Royal College of Surgeons; Consulting Surgeon to Guy's Hospital; Member of the Surgical Society of Paris. London: J. & A. Churchill. 1888.

In opening his course of Hunterian Lectures on Tension in Surgical Practice, Mr. Bryant somewhat startles us by asserting that his subject is one "concerning which there is little or no literature." He makes this statement to excite the interest of his audience, but however he feared the dulness of his subject, or his handling of it, he has hardly the right, for this reason, to claim for it a hearing on the score of novelty. Surely every writer who has discussed the Galenic signs of inflammation has, in doing so, dealt with tension and its attendant pain while examining them. Does not Cullen, to take a sample at random, define "Phlogosis" thus—"Pyrexia, partis externæ rubor, calor et tensio dolens?"

While Mr. Bryant takes the liberty of claiming novelty for his subject, he goes further, for he starts by taking liberty with the Queen's English:—"The surgeon uses the term as applied to the pressure brought about by cystic or solid growths, by the extravasation of blood, and more particularly by what is far more common—the effusion of *inflammatory* fluids." We would ask for an authority for such use of the adjective "inflammatory." In this country we know full well the ordinary acceptation of the term, for every newspaper tells of the inflammatory speeches and writings—the daily subject of prosecutions—and our dictionaries define the meaning to be "tending to excite heat or inflammation;" but Mr. Bryant, in the passage we quote, means fluids the products of inflammation.

The lecturer is again unfortunate in his use of an adjective when he takes, for an illustration, the familiar disease, whitlow, affecting the sheath of the flexor tendons of the finger. He says:—"Let me take this example of thecal inflammation, therefore, as a text, and enlarge upon it." For the first time, in reading his elaboration of this particular text, we meet with the statement at its very end that the particular theca he speaks of is that of the finger. In his enunciation of his text the adjective "thecal" is evidently made to include "digital" within its meaning.

Passing to the subject-matter of this little sermon, we find the course and symptoms of a very familiar disease admirably given, just as they should be given to a class of students in a clinical lecture in which the lecturer is bound to measure the knowledge of his pupils by the ignorance of the most junior amongst them.

But, we ask, is this the tone in which one should treat the subject in the Hunterian Lecture addressed to the Royal College of Surgeons of England? Is it any novelty in the present day to tell educated surgeons the proper treatment of this disease? "In my own practice, I, as a matter of routine, cut down freely and immediately upon a finger the seat of thecal inflammation, and always congratulate myself that I have done so when only serum and blood escape, and no pus; for the existence of pus means destruction of tissue under most, if not all, circumstances—a result which should be avoided." Certainly, but Mr. Bryant seems to think that he has some special property in this treatment, as if it were not taught in the wards of every hospital in the three kingdoms, and in every course of lectures on systematic surgery throughout the country.

The best part of this first lecture, which we are reviewing, is the series of cases. These are well-selected and most interesting; but even here we cannot pass without comment the lecturer's view about absorption of purulent matter. Having discussed the value of aspiration of small quantities of fluids collected in inflamed joints, bursæ, serous cavities, and the like, in the treatment of tension, and as a means of bringing about the ultimate absorption of such collections of fluid, Mr. Bryant says:—"In the same way the contents of an abscess may often become absorbed by natural processes after a sufficient quantity of its contents has been withdrawn to relieve tension." This assertion is not supported by any fact recorded by the author, and we may well challenge him to prove it, for certainly it is contrary to the pathological teaching

of the present day, and on its truth or falsehood rests all the theory of surgery in the treatment of abscess.

Great must have been the patience of Mr. Bryant's audience if they listened without murmur to the whole of the record of cases of disease of bone quoted as illustrations of the association of tension and pain. Thirty-seven cases in all, and all much alike, must have indeed wearied the audience, as they have us, in reading them through in search of novelty or anything more than what all our text-books on disease of bone have already said over and over again.

In his third lecture Mr. Bryant starts by tacking on "Cranial and Intracranial Injuries" to the subject of Tension. But this being well-nigh used up in the two preceding lectures, he goes off the track into an entirely new line:—"It is not my intention, however, to dwell at any length upon this aspect of the question, for I thought it well to use my present opportunity to bring before you some general considerations on the subject of cranial injuries, which I have good reason to believe are neither sufficiently recognised nor generally taught—and more particularly since these considerations have no unimportant influence on surgical treatment." The preliminary reflection introducing this subject is "that the effects of a force applied to the skull are much influenced by its thickness, and that in this matter there is in cranial bones great diversity." After a brief study of the effects of diversity of the thickness on head injuries, Mr. Bryant states the main question:—"To say that injuries of the head should always be estimated primarily with reference to the amount of damage the cranial contents have sustained; and, secondarily, with reference to the risk of their becoming involved, is to say what all sound surgeons of experience believe, and make the basis of their treatment."

But this is the very subject which he believes "to be neither sufficiently recognised nor generally taught." Is he then the only sound surgeon of experience who has the courage of his opinions, and are all the others throughout the kingdom afraid to teach what they know and believe?

"And yet students are taught to think that scalp wounds, fractures of the skull, hæmorrhage beneath the bone, concussion and compression of the brain, and inflammation of the brain, are separate and independent affections with diagnostic symptoms which can be tabulated."

Surely Mr. Bryant overstates the fact when he says, in criti-

cising this modern teaching of students:—"Yet in all these different classes of cases there is one common injury, one common source of danger present or remote—viz., the condition of the brain which is associated with the injury, and which has been brought about by the 'stunning' force."

Throughout his lecture he admits that his doctrines have been taught by a long series of Hunterian Lecturers and others for over thirty years, and yet he seems to think himself entitled to credit for standing up to teach them over again, as "neither sufficiently recognised nor generally taught."

Many passages in this lecture are curious examples of English—*e.g.*, "In fact all authorities now agree that when death follows a severe shaking or concussion of the brain, contusion, bruising, or laceration of the brain is invariably present, and that when it is not found, the death is probably to be ascribed to some other than a cerebral cause." "He was then brought to Guy's Hospital, and requested to be left, but to this the mother objected." How can gross pathological change be invariably present if there are examples in which it is not found? Did the boy request, or the staff at Guy's?

The Tongue as an Indication in Disease. Being the Lumleian Lectures delivered at the Royal College of Physicians in March, 1888. By W. HOWSHIP DICKINSON, M.D. London: Longmans, Green & Co. 1888. Pp. 114.

THIS work begins with an historical introduction, giving the opinions of physicians from the earliest times on the significance of the appearances presented by the tongue in disease.

The author in his own work speaks first of the healthy tongue; then he considers the changes due to an increase of epithelium forming the coat, which may be a mere stippling or may increase so as to give the tongue the appearance of being covered by a continuous layer of white plaster. This increase of epithelium is mainly characteristic of the febrile state. Those conditions of tongue are next spoken of in which it loses its coat and becomes bare. These conditions point to asthenia and failure of vital power, and are of bad prognosis. Much attention is given to the subject of dryness of the tongue, and it is shown that it cannot be explained merely by the respiration being carried on through the mouth, but that it is due to suppression of the salivary secretion.

Throughout, the clinical descriptions are accompanied by an account of the anatomical structure of the tongue in each condition described. The text is illustrated by numerous coloured plates representing sections of the tongue in each of its states. Numerous tables are given of the diseases in which each state of tongue was observed.

On the whole, the author concludes "that the tongue is an index of constitutional states, seldom of individual diseases. It is often a guide in treatment, so far as treatment is general, not local, and it is an important help in prognosis. It may indeed be doubted whether any means of observation open to the physician, including the pulse and the thermometer, give him more insight into constitutional states than he can derive from the tongue."

Whether this estimate is borne out by the facts, we must leave our readers to decide, advising them to read Dr. Dickinson's essay before they make up their minds. Among much other interesting matter they will find an account of the anatomical changes in the tongue when affected by so-called pityriasis or annulus migrans.

Essai sur les Maladies des Centres Nerveux, leurs Causes et leur Traitement. Irritation Oculo-Neurale. Par M. GEORGE T. STEVENS. 4to. Pp. 67.

THIS essay was presented to the Belgian Royal Academy of Medicine in answer to the following question proposed for the *concours* of 1881-1883:—"Elucider par des faits cliniques, et au besoin par des expériences, la pathogénie et la thérapeutique des maladies des centres nerveux et principalement de l'épilepsie." A prize of 500 francs was awarded to the author.

Dr. Stevens calls attention to the large part which affections of the eyes play in producing nervous diseases in persons disposed to such affections. Errors of refraction and muscular anomalies cause not merely pain about the head and eyes, difficulty of vision, and the usually recognised symptoms of asthenopia, but are the determining causes in many cases of the following diseases:—Migraine; neuralgia, often, but not always, confined to the cranial nerves; spinal irritation and neurasthenia; chorea; epilepsy; insanity. Numerous cases of these affections are recorded from the practice of the author in which the nervous symptoms were cured or alleviated as soon as the ocular defects were remedied. In the final section on treatment an operation for the cure of insufficiency

of the external recti muscles is described, which has been practised with success in 315 cases.

This paper is well worthy of the attention of all those who are called on to treat nervous diseases, and although we doubt if ocular defects play so important a part in the ætiology of these diseases as the author thinks, yet he must be admitted to have shown that in all instances the most careful examination of the eyes is indispensable before commencing the treatment of any case.

Revendication de la priorité de la découverte des Vaccins du Choléra Asiatique faite sous les auspices de la Municipalité de Barcelone.
Par le DR. D. J. FERRAN. Barcelone: N. Ramirez & C^{ie}.
1888. Pp. 94.

THIS pamphlet, addressed to the Académie des Sciences of Paris, has been called out by the recent communication of M. Gamaleïa, of Odessa (made to the same body), in which he professes to have discovered an attenuated virus, inoculation with which gives protection against cholera. Gamaleïa finds that while ordinary cultures of the cholera vibrio have only slight virulence, this is enormously increased by passing the vibrio through the bodies of guinea-pigs, afterwards through those of pigeons. This intensified virus in doses of a few drops is invariably fatal. If animals are inoculated with ordinary non-virulent cultures they become refractory to the most virulent virus. Further, if the virulent virus from the pigeon is cultivated in nutritive bouillon, and the cultures sterilised by heating for twenty minutes to 120° C., this sterilised culture when inoculated two or three times gives protection from virulent infection. In this way we have a means of preventing attacks of cholera.

Dr. Ferran maintains that all that is important in the discovery of Gamaleïa was discovered, published, and acted on by himself years ago. He complains bitterly of the want of fairness and consideration which he has received from the Académie des Sciences and from his own Government, and publishes a long series of papers in support of his position. It would be impossible for us to enter at length into this purely personal dispute. Dr. Ferran seems to put his case fairly, and his pamphlet is worthy of study by all those who are interested in questions as to priority of scientific discoveries.

RECENT WORKS ON PHTHISIS.

1. *The Contagiousness of Phthisis (Tubercular Pulmonitis)*. By LAURENCE F. FLICK, M.D. Philadelphia: W. J. Dornan. 1888. Pp. 21. Reprinted from the Transactions of the Medical Society of the State of Pennsylvania. 1888.
2. *Die Verbreitung der Tuberkelbacillen ausserhalb des Körpers*. Von DR. GEORG CORNET. Pp. 140. Separat-Abdruck aus der Zeitschrift für Hygiene. Fünfter Band. 1888.
3. *Ueber das Verhalten der Tuberkelbacillen im thierischen Organismus unter dem Einfluss entwicklungshemmender Stoffe*. Von DR. GEORG CORNET. Pp. 35. Separat-Abdruck aus der Zeitschrift für Hygiene. Fünfter Band. 1888.

1. DR. FLICK, after giving a historical sketch of the views which have been held on the contagiousness of phthisis, notices the difficulty of the subject, which is due largely to the long duration of the disease. He combats the prevailing theory as to the hereditary nature of consumption, and shows that where several deaths occur in one family they are quite explicable on the view of contagiousness. He admits, however, an hereditary tendency to this as to other diseases. In proof of the contagiousness of phthisis he adduces numerous instances of countries where this disease was unknown until it was introduced by immigrants. This is true of North America, and interesting contrasts are drawn between the effects produced on the health of the natives of this country by intercourse with the English and Spanish settlers respectively. The former disbelieved in the contagiousness of phthisis, while the latter always held this theory. Similarly the disease was introduced into Bermuda, Madeira, and Africa.

A study is then given of the distribution of phthisis in one of the wards of the city of Philadelphia. It is shown that cases of this disease are not spread evenly through the city, but that there are certain quarters where phthisis cases are numerous, while in other parts they are very few or absent. The places most affected with phthisis are also those where other contagious diseases are most common. The maps accompanying the paper show not only that "consumption is centralised, but that it gradually changes its centre; that it completely changes its centre every three or four years; that it reappeared in the same locality in from one to two years; that it has a preference for filthy neighbourhoods; and

that its grouping is identically the same as that of typhoid fever, small-pox, scarlet fever, and diphtheria."

"They further show that while density of population and filth attract the disease, thinness of population and cleanliness afford no protection when the disease germ is introduced into a locality; that the disease has a decided predilection for the coloured race; and that during the twenty-five years scarcely twenty per cent. of the houses of the ward were infected."

"Of the infected houses scarcely ten per cent. are isolated—that is, standing by themselves, or, rather, not having an infected house next to them. About thirty-three per cent. of the infected houses, moreover, have had more than one case. These two facts alone seem to warrant the conclusion that consumption is never contracted except either by contact, by association, or by living in close proximity."

The change in the phthisical centres is explained by the supposition that the disease uses up all the available material in a locality and then dies out for a time until fresh material is introduced.

Evidence is adduced to show that a population may become in some degree acclimatised to phthisis as to other contagious disorders. Thus "the history of consumption in all new countries into which it has been introduced shows that it has had a rise, a climax, and a decline in prevalency."

It is maintained that phthisis, like other contagious diseases, affords an immunity from another contagious disorder. "As regards consumption, I have been unable to find a single authenticated case in which any other contagious disease was concomitant." In this we think the experience of Dr. Flick is exceptional, and so far as we can see there is no reason why phthisis, which, although contagious, is nevertheless a local disease, should interfere with contagion by another virus which affects the entire system.

Dr. Flick formerly believed that the bacillus tuberculosis was ubiquitous. His topographical study of phthisis has shaken this belief. He thinks that the bacillus preserves its vitality only so long as it is protected by purulent matter, and that it can propagate itself in decaying matter of any kind, and thus perpetuate itself indefinitely. This is fortunately not the case. If it were so there could be no hope of protection from phthisis. It has been shown that the bacillus is capable of propagation only in the bodies of animals—outside the body the conditions for its growth can scarcely ever be met with.

2. Dr. Cornet has examined the dust taken from the walls of hospital wards, asylums, prisons, and private houses where phthisical patients had been. The dust was removed by a moist sponge from near the patient's bed, but from a part which could not have been soiled directly by expectoration or contact with dirty fingers. In each case the dust was taken from a square metre of surface, and by calculation it was found to correspond to the deposit from 51,000 litres of air. The dust was introduced into the bodies of guinea-pigs in order to test its infectiveness. A very large number of experiments were made with 147 different specimens of dust coming from 133 different localities. In the research 392 guinea-pigs were employed. The work is one of the highest value, and most deserving of the attention not only of physicians but of the public, for, as the author says, the prevention of disease by hygiene belongs to the public—the treatment of disease already contracted is the province of the physician.

The following table will give some of the most important results arrived at in this research:—

No.	Locality	Total No. of Animals Inoculated.	Of these there Died		There Died consequently of Infective Disease		Remained Healthy.
			Of Tuberculosis.	Of other Infective Disease.	Altogether.	In percentage of Inoculated Animals.	
1	In the seven hospitals - - -	94	20	52	72	76·6	22
2	In the three lunatic asylums -	33	3	16	19	57·6	14
3	In the two prisons - - -	14	0	6	6	42	8
4	Inhalation rooms - - -	4	2	0	2	50	2
5	Private rooms of phthisical patients	170	34	91	125	73·5	25
6	Dispensary, orphanage, &c. - -	28	0	14	14	50	14
7	Surgical wards - - -	8	0	1	1	12·5	7
8	Streets and hygienic institute -	41	0	16	16	39	25
9	Streets alone - - -	—	—	—	—	55	—
		392	59	196	255	65·05	137

It thus appears that of 392 animals inoculated, 196, or exactly half, died of some acute infection other than tuberculosis, such as

peritonitis or malignant oedema; that the animals who remained longer alive and died of tuberculosis show that the danger of infection by this disease was 47·6 per cent. in hospitals, 17·6 per cent. in lunatic asylums, and 43·6 per cent. in private houses of phthisical patients.

The danger from infective diseases in general is shown to be least in surgical wards, where it reached only 12·5 per cent.; and next in prisons, where it was 42 per cent. So that these two localities, which not long ago were the hotbeds of infective disorders, are now the freest from these diseases. This is a remarkable and encouraging result of hygiene.

The researches of Dr. Cornet show conclusively that the tubercular virus is not ubiquitous, but that it arises from and remains concentrated about phthisical patients. A phthisical patient is, however, not necessarily a source of danger, but only if the most elementary rules of hygiene are neglected; but these rules are badly understood and scarcely acted on at all, and the great object of this paper is to lay down these rules and to insist on their due observation.

Of the discharges of phthisical patients it is only the sputum which is dangerous. The presence of bacilli in the breath, which has been maintained by some writers, is shown to be founded on error. The sweat is never dangerous, the urine and fæces hardly ever.

The sputum, so long as it is moist, is devoid of danger. It is impossible that a bacillus could evaporate. If the sputum is spat into spitting cups there is no risk. The cups should be kept covered except when in use, not to prevent evaporation, but to keep out flies, which have been known to carry the virus about on their feet. It is shown that the use of carbolic acid in the spitting cups for disinfection of the sputum is unreliable and too inconvenient and troublesome to be insisted on. The same is true in a still greater degree of corrosive sublimate. In private houses where the amount of sputum is not large it may safely be thrown down sewers, as it is there kept moist and is destroyed by putrefaction before it can be dangerous. In hospitals the sputum should be destroyed by boiling. Spittoons containing sand or sawdust, although far better than nothing, are not so good as receptacles where the sputum has less chance of drying.

The great danger, however, arises where the patient spits on the floor or in a handkerchief. In these cases the sputum dries, is

pulverised and driven about by the wind. Tables are given which show that tubercle bacilli were always to be found in the dust of those places where the patients did not expectorate exclusively into spitting cups, but where they spat either on the floor or into pocket handkerchiefs; while in those instances where this habit was certainly not practised no single animal became tuberculosis after inoculation with the dust.

That the danger of carelessly-distributed sputum is not greater than it is, is due to the mucus in which the bacilli are imbedded. This is very difficult to pulverise, and so is not so readily wafted about as smaller particles would be, and being also very hygroscopic it has but little tendency to dry.

The rules of practice which spring from these simple considerations are fully and ably laid down by Dr. Cornet, and if carefully acted on would, doubtless, reduce enormously the mortality of this disease, which now kills about one-seventh of the entire population, and affects, probably, one-third of all men.

For the details of practice in carrying out those rules we must refer to the work itself. It is, however, evident that, until the patients themselves are made to understand the importance of expectorating into spitting cups exclusively, any advance is hopeless. It is repeatedly pointed out that the patient is more dangerous to himself than to his surroundings; that he may well poison himself by his own expectoration, and that the inhalation of a few bacilli more, and the consequent starting of fresh foci of disease in his lungs, may determine the speedy end of his life.

In speaking of disinfection of bedding, some experiments are detailed which are of great importance, as showing the imperfect way in which such purification is carried out. Dr. Cornet bought an old feather bed, and took out of it 100 feathers, which he marked and put back into the bed after having infected them with phthisical sputum, then sent the bed to be disinfected, and on getting it back took out five of the marked feathers, and sent the bed again to be disinfected; again he took five feathers, and sent the bed to be disinfected a third time, and so on for six times—the bed going each time to a different establishment. Inoculations of extracts of the feathers caused tuberculosis in guinea-pigs up to the end of the experiment.

Another series of experiments are given, showing the readiness with which tuberculosis may be transferred from patient to patient by the use of the laryngoscope.

We cannot too strongly recommend this able paper to the attention of all our readers. It is possible that in some few points the author goes somewhat beyond the facts absolutely proved by his experiments; but there can be no doubt that he has established by these experiments the true principles by an observance of which we can alone hope to stay the ravages of one of the saddest diseases which affect mankind, the saddest part of which is the knowledge that it is preventable if we only knew how to attack it.

3. In this paper Dr. Cornet gives an account of experiments with various substances to see whether they have any effect on the course of tuberculosis experimentally induced in rabbits and guinea-pigs. In all cases control animals were employed, who had been made tubercular, but in whom the disease was allowed to run its course untreated. On the whole 102 guinea-pigs and 10 rabbits were used. The substances administered subcutaneously, or by stomach or rectum, were — tannin, acetate of lead, garlic, pinguin, sulphuretted hydrogen, menthol, corrosive sublimate made acid with hydrochloric acid, creolin, and creasote. None of these had any effect on the tubercular process. Guinea-pigs inoculated and sent to Davos, 4,800 feet above the sea, died as soon as the control animals kept in the Hygienic Institute in Berlin. The result of the research is not calculated to encourage the hope that the tubercle bacilli are to be destroyed in the body by specific drugs.

Lectures to Practitioners on the Diseases of the Kidney amenable to Surgical Treatment. By DAVID NEWMAN, M.D.; Surgeon to the Western Infirmary (out-door department); Pathologist to, and Lecturer on Pathology at, the Glasgow Royal Infirmary, &c. London: Longmans, Green, & Co. 1888. Pp. 472.

THE book before us consists of a series of six lectures, which, in an abbreviated form, constituted part of a combined course of post-graduate lectures delivered in Glasgow during the autumn of 1886.

The first lecture deals entirely with malpositions of the kidney. These are divided into three classes:—First, simple misplacement without mobility of the organ; “movable kidney,” where the kidney is perceptibly mobile behind the peritoneum; and “floating kidney,” where the peritoneum forms a meso-nephron, which attaches the kidney loosely to the spine. These two latter terms

are frequently used as synonymous by many writers, but the author lays stress on the importance of carefully distinguishing between them. "Movable kidney" is of much more frequent occurrence than "floating kidney," which is comparatively rare. Of all the cases examined with the special object of ascertaining the relative frequency of *movable* kidney, 2·5 per cent. were found to be possessed of it; in women alone, 3·2 per cent.; and in men alone, 0·8 per cent. An interesting table, compiled by Landau, shows that of 173 cases of movable kidney, 152 were found on the right side, 12 on the left, and in 9 cases it was a bilateral condition. The author discusses very fully the different causes assigned for this condition, and comes to the conclusion "that a satisfactory explanation has not yet been advanced." He also considers exhaustively the various symptoms which may result from a movable kidney, and explains the conditions which may call for operative interference. He strongly recommends the operation of nephrorrhaphy—i.e., fixing the kidney with sutures into its proper position—and very properly condemns nephrectomy as an unnecessarily risky operation in such cases. The lecture concludes with a short description of "floating kidney," which is always of congenital origin, and which the author maintains it is not possible to distinguish, by physical examination, from the movable kidney, previous to operation.

This lecture is extremely interesting, and we would strongly recommend a perusal of it to those who, like Lawson Tait, deny the possibility of floating kidney, because they have "never seen such a thing."

Lecture II. is devoted to the symptomatology of the diseases of the kidney which are amenable to surgical treatment. The chief symptoms discussed are hæmaturia, pyuria, pain and swelling. An excellent description is given of the means employed to detect the source from which hæmorrhage comes. When blood is intimately mixed with the urine, the author lays great stress on the relationship between the quantity of hæmoglobin, and the amount of albumin in the urine, as an aid in determining whether the renal hæmorrhage is associated or not with inflammation; and he describes an apparatus, which he laid before the profession in 1880, for estimating, by means of the spectrum, the quantity of hæmoglobin in solutions.

In Lecture III. diseases characterised by accumulations of non-inflammatory fluid are discussed. Under this heading we find

congenital and acquired hydronephrosis; simple cysts of the kidney, and cystic degeneration; hydatids, and congenital cysts. The last 21 pages of this lecture are devoted to the different methods of treating these affections. These methods are—aspiration, incision and drainage (nephrotomy), and nephrectomy.

As we might have anticipated, the method of tapping for hydronephrosis is losing ground, as in other diseases of the body, and its place is being taken by the method of antiseptic incision and drainage. The author shows that statistics strongly support this change. He states that “of 29 cases of tapping for hydronephrosis, 7 recovered from the operation with cure of the disease, while 4 underwent temporary improvement; the remaining 18 died” (p. 147). And again (p. 149), “Since 1878 I find that nephrotomy for hydronephrosis has been performed 15 times (abdominal 3, lumbar 12) without a single death.” The only danger in this method seems to be the establishment of a permanent urinary fistula. Excision of the kidney should be performed only when nephrotomy has failed, and a permanent fistula is giving rise to a condition which makes life unbearable, or when the sac has suppurated; but in all cases it is necessary first to ascertain that the other kidney is in a condition to perform the extra work thrown upon it.

Lecture IV. deals with the suppurative diseases of the kidney and with renal calculus. This is an elaborate and well-written lecture. It would be impossible in the space allotted to a review to give a *précis* which would do even scanty justice to the exhaustive manner in which the author deals with these diseased conditions.

In Lecture V. acute miliary tuberculosis and scrofulous kidney are discussed. The surgical treatment of scrofulous kidney has been frequently impugned, on the grounds that both kidneys participate frequently in the disease. But the author shows by statistics and cases that “nephrectomy has now been performed many times with signal success. . . . Although the mortality is very high—namely, 36·3 per cent.—a sufficient proportion of the patients have recovered from the operation, and enjoyed a prolongation of life, to justify the surgeon in extending his sway where medical treatment is unavailing” (p. 300). In cases where the disease is limited to a small area, and has formed only one cavity which can be easily drained, nephrotomy may be practised in the first instance, and it is possible that no further interference may

be called for. But should the wound continue to discharge, excision must be performed; otherwise amyloid degeneration of the other kidney may be induced.

This lecture concludes with a description of the wounds and injuries to which the kidney may be exposed.

Lecture VI. treats of the various tumours which may affect the kidney, and which are described in detail.

The course of lectures concludes with a full description of the operations which may be performed—first for diagnostic purposes, and secondly as remedial measures. Under the first heading a very excellent account is given of the various methods which have been adopted with a view to compress the ureters or to catheterise them. These should be carefully studied, but a perusal of them shows that the inherent difficulties in the way of accomplishing these objects is a bar to their frequent employment. Under the second head, nephrotomy, nephrectomy, and nephrorrhaphy are described.

Taken as a whole, this book is one which is a distinct gain to medical literature. It follows different lines than those of recent works on the same subject, and enters very fully into many of the controversial points which excite the minds of many operators.

Finally, the book is well printed on good paper and in excellent type, and reflects credit on the firm of publishers. The illustrations in the work are conspicuous by their absence. There is a fairly good index.

Clinical Lectures and Essays on Diseases of the Nervous System.

By JOHN SYER BRISTOWE, M.D. London: Smith, Elder, & Co. 1888. Pp. 403.

THE papers composing this volume have nearly all been published before, but in collecting and arranging them, and in so making them easy of access, Dr. Bristowe has added largely to the numerous valuable contributions he has already made to current medical literature.

We have here details of 135 cases of nervous disease recorded with all the ability and acumen of the distinguished author, and accompanied by commentaries and remarks whose value it would be difficult to over-estimate. The cases are arranged in groups, and in this way the resemblances and differences between them are made apparent.

The earlier chapters deal with hysteria and similar conditions. Dr. Bristowe believes that there are many functional diseases of the nervous system—such as certain forms of insanity, epilepsy, chorea, megrim, neuralgia, and hysteria—which, although severally distinguished clinically by definite groups of symptoms, are nevertheless so closely related in their essence and causation that it is often difficult or impossible to refer a particular case to any one category. “The recognition of intermediate types or the failure to form a definite diagnosis in every case cannot be taken to imply ignorance.” He calls attention to the facts that many most serious apparently organic nervous diseases present no visible pathological change when examined *post mortem*; that many cases apparently of organic disease recover perfectly; that serious nervous symptoms come and go apparently without cause; that functional nervous diseases simulate the most serious organic affections; and that while emotional or hysterical persons are most prone to suffer from such affections, these are not infrequently met with in patients who present no other evidence of the hysterical condition.

In chapter VI. a most remarkable case is recorded, the subject of which suffered from complete aphemia, but recovered speech by careful education of the organs of articulation. It is interesting not only from the light which it throws on the obscure subject of abnormalities of speech, but as showing how much may be accomplished by intelligence on the part of the patient and his physician.

Following chapters on recurrent functional palpitation of the heart and on Graves' disease, we have a most remarkable series of chapters on recovery from conditions which pointed to severe organic disease of the nervous centres—tubercular meningitis, progressive disease in the neighbourhood of the fourth ventricle, cerebral embolism, idiopathic cerebro-spinal meningitis, and thrombosis of the lateral sinuses.

In chapter XIV. two cases of purpura are detailed, in both of which death resulted from cerebral hæmorrhage.

A chapter on bilateral facial palsy is followed by three chapters on cerebral tuberculosis—one on tubercular meningitis, in which all the cases presented unusual points; a second on tubercle of the cerebellum; and a third on cases in which the cerebral tuberculosis was masked or unrecognised in consequence of some accompanying circumstance. In the cases of tubercle of the cerebellum, the most noteworthy facts were—1st. The general prevalence of the common signs of tumour, such as headache, sickness, and optic

neuritis; 2nd. That the headache was by no means limited to the back of the head; 3rd. Except in one case, the absence of a staggering gait; 4th. The supervention in one case of tubercular meningitis, an uncommon complication of tubercular tumours of the brain.

In chapter XIX. is given a series of five cases of tumour of the corpus callosum. These cases are marked by—1st. Their ingravescient character; 2nd. The gradual coming on of hemiplegia similar to that occurring in hæmorrhage or embolism; 3rd. The association of paralysis of one side with vague hemiplegic symptoms on the other; 4th. The supervention of stupidity, associated for the most part with extreme drowsiness, a puzzled inquiring look when awake, a difficulty of getting food down the throat, and cessation of speech. These phenomena seemed to be due mainly to stupidity and irresistible tendency to sleep, and not definitely to paralysis or affection of the centres for speech; 5th. The absence of implication of the oculo-motor nerves, and of direct implication of other cerebral nerves; and lastly, death from coma. Headache, sickness, optic neuritis, and convulsions, were absent.

Chapter XX. deals with cases of tumour involving the parts in the neighbourhood of the third and fourth ventricles and the aqueduct of Sylvius. Chapter XXI. is on softening of the pons, crura cerebri, and neighbouring parts; chapter XXII. on myelitis; and chapter XXIII. on diphtheritic and related forms of paralysis. In chapter XXIV. we have a most suggestive essay on the early recognition of general paralysis of the insane, and the relations between this disease, tabes dorsalis, and disseminated sclerosis. These three diseases when typically manifested differ widely from one another, but numerous cases are here recorded which show that in some cases the diagnosis is difficult and attended with much uncertainty. The final chapter is on painful paraplegia, most of the cases being due to malignant diseases involving the bones.

From this brief summary of the contents of the volume it will be seen how varied and interesting are the subjects dealt with in its pages. The work is one of genuine clinical value, whose worth it would be impossible to rate too highly, displaying as it does in every chapter the wide experience and sound judgment of its distinguished author.

RECENT WORKS ON HYDROPHOBIA.

1. *Hydrophobia: a Review of Pasteur's Treatment.* By W. COLLIER, M.A., M.D. London: H. K. Lewis. 1888. Pp. 31.
2. *Report on Hydrophobia.* By CHARLES W. DULLES, M.D. Philadelphia: W. J. Dornan. 1888. Pp. 8.

1. IN this pamphlet Dr. Collier gives a brief review of Pasteur's work on fermentation, silkworm disease, anthrax, and chicken cholera, and shows how he was led to the discovery of vaccination by attenuated virus. A good account is then given of the researches on hydrophobia and the results which have been obtained. These are too well known to need repetition. Dr. Collier is evidently a thoroughgoing Pasteurian, and considers as proved even the earthworm theory of the spread of anthrax. The paper is of a semi-popular character, but is to be recommended to those who are not already acquainted with Pasteur's work.

2. The Report of Dr. Dulles, reprinted from the "Transactions of the Medical Society of the State of Pennsylvania," starts with the statement "that Pasteur's method hardly attracts any attention now, and seems to be in a fair way to die a natural death." He holds that hydrophobia is not a specific inoculable disease. The fact is not denied that men and women and children sometimes fall into a peculiar state after a dog-bite and die in due time—"But I do deny that this is attributable to any specific virus in the dog's saliva. The same thing has occurred too often from other causes to justify one in charging it to a specific virus when it follows a dog-bite, and I believe that the rejection of the specific theory will do more to banish hydrophobia from the world than anything which we have ever heard of. The word hydrophobia should be used only to describe a condition—and not a disease—as we use the word 'convulsions,' and it should be remembered that this condition may be present in a great number of diseases." "I firmly and honestly believe that if this view of what is called hydrophobia was generally accepted, the disorder would shrink and disappear, as the geni is said, in the tales of the Arabian Nights, to have shrunk and disappeared when the right word was spoken."

"I do not despair of seeing the belief in hydrophobia follow the belief in witchcraft, which once had the support of Church and State, of the medical profession and the laity, but which now, thank God! torment our fellow-men no more."

Dr. Dulles argues from a recent paper by Dr. Dujardin-Beaumez, that Pasteur's treatment has had no effect in diminishing the usual mortality from hydrophobia in Paris; that the rarity of this so-called disease in Germany is due to the failure of Pasteur's theories to make way in that country; that to a similar cause is to be attributed the fact that in the whole United States in the past year only fourteen deaths (and those badly attested) from hydrophobia have been recorded, while in the State of Pennsylvania not a single case has occurred.

Our readers will see that the hydrophobia question is not yet settled.

Rectal Insufflation of Hydrogen Gas. By H. SENN, M.D., Ph.D.
Chicago. 1888.

In this paper, read before the American Medical Association, Dr. Senn brought forward the results of experiments which he conducted mainly for the purpose of determining the following points:—

1. The permeability of the intestinal canal to gas introduced through the rectum; 2. The force required to overcome the resistance of the ileo-cæcal valve; 3. The action of hydrogen gas on the tissues of the body; and lastly, the value of inflation by hydrogen as a test for perforation of the intestinal canal.

After a careful study of the subject, and after numerous experiments, not alone on the lower animals but on the human subject, and even on himself, he arrived at the following conclusions:—

1. The entire alimentary canal is permeable to rectal insufflation of air or gas.

2. Inflation of the entire alimentary canal from above downwards through a stomach tube seldom succeeds, and should therefore be resorted to only in demonstrating the presence of a perforation or wound of the stomach, and for locating other lesions in the organ or its immediate vicinity.

3. The ileo-cæcal valve is rendered incompetent and permeable by rectal insufflation of air or gas under a pressure varying from one-fourth of a pound to two pounds.

4. Air or gas can be forced through the whole alimentary canal, from anus to mouth, under a pressure varying from one-third of a pound to two pounds and a half.

5. Rectal insufflation of air or gas, to be both safe and effective, must be done very slowly and without interruptions.

6. The safest and most effective rectal insufflator is a rubber balloon large enough to hold 16 litres of air or gas.

7. Hydrogen gas should be preferred to atmospheric air or other gases for purposes of inflation in all cases where this procedure is indicated.

8. The resisting power of the intestinal wall is nearly the same throughout the entire length of the canal, and in a normal condition yields to diastaltic force of from eight to twelve pounds of pressure. When rupture takes place it occurs either as a longitudinal laceration of the peritoneum on the convex surface of the bowel, or as multiple ruptures from within outwards at the mesenteric attachment. The former result follows rapid, and the latter slow, inflation.

9. Hydrogen gas is devoid of toxic properties, non-irritating when brought in contact with living tissues, and is rapidly absorbed from the connective tissue spaces and all of the large serous cavities.

10. The escape of air or gas from the ileo-cæcal valve from below upwards is always attended by a blowing or gurgling sound, heard most distinctly over the ileo-cæcal region, and by a sudden diminution of pressure.

11. The incompetency of the ileo-cæcal valve is caused by a lateral and longitudinal distension of the cæcum, which mechanically separates the margins of the valve.

12. In gunshot or punctured wounds of the gastro-intestinal canal, insufflation of hydrogen gas enables the surgeon to demonstrate positively the existence of the visceral injury without incurring the risks and medico-legal responsibilities incident to an exploratory laparotomy.

This introduction of hydrogen gas in a slow and continuous way is a decided improvement on the insufflation as usually conducted by Lund's or other insufflator, and there can be no doubt but that the author has placed on a firm basis the diagnosis of intestinal perforation by making so exhaustive a study of the subject. Many lives may be saved by the application of this test, as after the discovery of a perforation delay in performing laparotomy will be unjustifiable, and chances of preventing sepsis (by early suture of the gut and washing out of the peritoneum) will frequently arise.

Since conducting these experiments Mr. Senn has had two opportunities of utilising the test in practice, and it augurs well for the procedure that in one case, in which many perforations of the small intestines existed, recovery followed abdominal section and suture. In this case the detection of the numerous points of injury would without gaseous distension have been a tedious and an extremely hazardous proceeding.

Mr. Senn deserves great credit for his able paper, and for his efforts to advance abdominal surgery.

The Diseases of the Chest; including the Principal Affections of the Pleuræ, Lungs, Pericardium, Heart, and Aorta. By VINCENT D. HARRIS, M.D., F.R.C.P. London: J. & A. Churchill. 1888. Pp. 419.

THIS volume of the Students' Guide Series is an excellent and valuable one. It contains, in a small space, a great deal of accurate information brought down to recent date, and is so well arranged that its contents are easily accessible. An excellent description is given of the Normal Chest, and then the Symptoms of Diseases of the Chest, Physical Examination of the Chest, and the Pulse and its Indications, are dealt with. The rest of the volume is taken up with a detailed and separate account of the various diseases of the chest.

Everything possible is done by means of tables, varied type, and arrangement, to save space, but in no way does it deserve to be classed with cram-books. Indeed, it appeals to the practitioner as well as to the student, as the principles of diagnosis and treatment are well outlined. There are a large number of helpful illustrations; those drawn by the author from his own preparations are printed in colour, and are especially good.

PART III.

HALF-YEARLY REPORTS.

REPORT ON NERVOUS AND MENTAL DISEASE.

By RINGROSE ATKINS, M.A., M.D.; Resident Medical Superintendent, District Lunatic Asylum, Waterford.

[Continued from page 62, and concluded.]

III. NEURO-MENTAL PATHOLOGY AND PATHOLOGICAL ANATOMY.

Essential Infantile Paralysis.—At the conclusion of a paper on the *rationale* of the treatment of this form of paralysis in children, published in the *Alienist and Neurologist*, Dr. C. H. Hughes gives the following *resumé* of the diagnostic points of the malady.

1. Poliomyelitis is not progressive in character.
2. It is exclusively a motor trouble, sensibility not being affected.
3. The sphincters are not paralysed.
4. There is no decubitus.
5. There is muscular atrophy, often followed by contraction and deformity.
6. When complete it gives no response to faradaic electricity.
7. Muscular response to galvanism or voltaic electricity gradually diminishes to end of first week, when it begins to rise, and finally becomes exalted far beyond normal response as compared with the healthy side.
8. Response to the poles is altered; normal response to negative and positive pole changes—anode loses, cathode gains in influence.
9. After thirty days galvano-muscular response fails decidedly.
10. Finally, galvanism excites no response.
11. Paralysis in infants, following a chill when the body is heated, gives suspicion of poliomyelitis anterior
12. The absence of anæsthesia, of a characteristic decubitus, of paralysis of the sphincters, distinguish it from acute, central, or transverse myelitis.

Rybalkin on Paramyoclonus Multiplex.—Dr. Jakov v. Rybalkin, of St. Petersburg, details the fourth Russian (and the thirteenth international) case of a curious, and still rather obscure neurosis, described in 1881 by Friedreich under the name of “paramyoclonus multiplex” (*vide Brain*, 1882, Vol. XVII., p. 136). The patient, a weak carpenter, aged fifteen years, who had fallen from a height of 14 feet about four years before, and who for the last three years had been daily engaged in heavy work (sawing boards three inches thick) that induced cramps in his limbs, passed through two distinct attacks, the first of which lasted five weeks and the second eight, and which were separated by an entirely free interval of about ten months. The symptoms (as observed in the second attack) consisted in clonic contractions (*a*) of some symmetrical muscles of the upper limbs—biceps, triceps, pectorales major and minor, and supinator longus—and of those of the right lower extremity—vastus externus and internus, rectus femoris, biceps, and semi-membranosus; (*c*) occasionally of those of the neck and body, sterno-mastoid, rectus abdominis, and long spinal muscles; (*d*) of the laryngeal muscles (closing the rima glottidis); and (*e*) occasionally of the masticatory muscles. The number of individual contractions varied usually from 40 to 60, and more, a minute; but sometimes the movements followed one another so rapidly that a tetanoid spasm of two or three seconds’ duration resulted. [Tonic contractions, however, which were observed in the patients of Bekhtereff—*London Medical Record*, August, 1887, p. 337—did not occur in the author’s case]. The convulsions were kept within their usual moderate limits solely by the patient’s incessant voluntary efforts. When he let his limbs alone (uncontrolled) usual slight twitchings of his limbs at once gave place to rapid jerk-like alternating flexions and extensions of the fore-arms, adductions of the arms, &c., the convulsions swiftly spreading over the muscles of the neck and body. The contractions remained absolutely unaltered during voluntary movements, but they distinctly decreased when the patient assumed a recumbent position, or when his attention was diverted by reading or conversation; they ceased altogether during sleep (as in all cases except Bekhtereff’s) and strongly increased from emotion, titillation of the soles of his feet, pricking with a pin, faradaic shock, stripping his body bare, pressure on the muscles affected, &c. The contractions of the laryngeal muscles were invariably intensified from reading aloud, speaking, &c., the patient suddenly losing his

voice (as in Homen's case) on such an effort. They were present, however, also during quiescence of the organ, since the lad's breathing even then remained interrupted and irregular. Muscular strength was rather weakened in the right arm. Co-ordination, cutaneous sensibility, galvanic and faradaic irritability of muscles and nerves, trophic and vaso-motor functions, the higher senses and mind were quite normal. But cutaneous reflexes were greatly exaggerated, while tendon reflexes were considerably lowered (as in Homen's case). Under the influence of valerianate of zinc ($\frac{1}{2}$ grain three times daily) and ascending galvanisation of the spine, considerable improvement steadily took place, and the contractions seemingly disappeared altogether.—*Brain*.

Dr. Frank R. Fry has recorded, in the *Amer. Journ. of Nervous and Ment. Dis.* for June last, another case of this curious malady. The patient was a young woman, a seamstress who had been employed for twelve years working a sewing machine; the family and personal history revealed nothing of importance. The first attack occurred in October, 1887, the spasms commencing in the muscles of the left thigh. While at work her lower extremities were suddenly seized with a jerking which continued for a short time and then ceased, to be followed by a similar attack, which occurred in the following order:—While sitting in a chair the patient executed a tramping movement with her feet of considerable rapidity, bringing them down alternately, and towards the close of the attack simultaneously, with a few slower kicks. Then with a few jerks in the right arm, and a few deep inspiratory sighs, the attack ended, lasting a few minutes, to begin again in a little while. She evidently had no control over the movements, and felt very much exhausted after them. There were no symptoms of hysteria. The muscles implicated were those of the hips and thighs, those of the right shoulder and arm also participating slightly. There was once noticed a slight flexion of the hand. The left arm was quiet, and only very rarely participated. There was no disturbance whatever of sensibility. No paralysis except slight weakness on account of the exhaustion. The patellar tendon reflex was exaggerated; co-ordination was good, and the mind clear. Hyoscyamin, chloral, bromides, morphin, and anti-pyrin were administered, separately and in combination, without any permanent benefit, under the influence of the continuous current. However, the attacks almost entirely subsided, occasional fibrillary contractions being the only evidence of the presence of the trouble.

Cousot on Periodic Paralysis (Revue de Méd., March, 1887).—Among the paralyzes that accompany or follow upon acute disease is a group that is attached to malaria, which have been called intermittent paralyzes. Comparable to these in some points, though fundamentally different, is a group of transitory paralyzes which do not follow any acute disease, or come on at quite regular intervals, of which Dr. Cousot has observed five cases and collected two others which he wishes to call periodic spinal paralyzes. Dr. Cousot's five cases were all members of one family—viz., the mother, two of her four sons, and two of her four daughters. The family was in all essentials healthy. The parents died of small-pox; all the family were, as a rule, in good health. The four paralytic children were a good deal smaller in stature than the rest. The second son, Henri, was the patient selected for the closest examination. He was aged thirty-four, and since he was fourteen years old had had three attacks of transitory paralysis. They became rather more frequent until he was twenty years of age, and then remained stationary. He had typhoid fever when ten years old, but no other serious illness. He was only five feet high, but strong and athletic. When his attacks of paralysis were coming on he first felt his knees weak, then his other joints; he was restless and tried to move about; there was no pain. For two or three hours the paresis increased; after nine or ten hours it had gradually disappeared. He remained fully conscious, and had no discomfort beyond a slight headache. He had been carefully put through all electrical tests for his muscular action and sensibility before an attack, and the results then obtained were decisive and normal; the fields of vision and colour were also normal. During an attack, whilst all his body and limbs, but not his head, were in a state of flaccid and complete paralysis, both muscles and nerves gave no reaction at all to galvanic or faradaic excitation. As the paralysis began to go off, the reaction of the nerves to a galvanic current was the first normal symptom to appear.

Sensibility remained throughout perfect in all forms during the attacks; but the reflexes, except the pupillary, disappeared: the sphincters were never relaxed. In his abnormal state he was covered over with a peculiar oily sweat—a kind of seborrhœa. The temperature in the month was 99·2°. On seven consecutive days these attacks were watched and tested; they lasted, on an average, about ten hours, and, as a rule, began about midnight, or in the early morning hours, and lasted till about midday, and as

late as 2 p.m. Once the fingers were movable, but, as a rule, the paralysis, at the culminating point of the attack, was complete in the arms, body, and legs, and the sensation perfect.

In the mother of the family similar symptoms had shown themselves every fortnight. In François, aged thirty-six, her eldest son, they were of the same type as in Henri, but longer and more severe. In Emerance, the eldest daughter, aged thirty-two, the attacks appeared when she was ten years old, and disappeared after the birth of her first child. In Josephine, her sister, aged twenty-one years, the symptoms came on when she was ten or eleven years old, and recurred nearly every week. In her, as in her sister, there was never any menstrual abnormality. The cases are to some extent analogous to a case of Westphal's (*Berl. klin. Woch.*, p. 489). A child, aged five, had scarlatina, with, perhaps, some nephritis, and a month later had an attack of temporary paralysis, with thirst, sweating, and loss of electrical reaction in the muscles. These attacks occurred at first about every month, and afterwards more frequently. There was no history of nervous disease in the family. The child seemed, in all other respects, in very good health. He came into hospital, under Westphal's care, when twelve years old. Many attacks were watched, and one may be taken as typical. In the afternoon he said his right knee was giving way, and fell on the floor—both legs were weak—both arms grew equally weak. There was much thirst, and frequent desire to micturate, without immediate power to do so. By midnight the paralysis was complete. When the patient was laid on his back he could not move any limb; there was no contraction; there was no plantar reflex, but the knee-jerk; the cremasteric and abdominal reflexes were normal; sensation and consciousness were natural; the muscles of the head, face, and eyes natural also. Strong faradaic stimulation of the nerves gave slight results. The trunk of the peroneal nerve could not be stimulated at all, and the muscles which it supplies gave no direct reaction to electricity at all. Next morning the reaction to galvanism and faradism in the arms was much better, though still slight in the legs. In the evening the patient could walk, though he was weak. Subsequently, similar attacks occurred nearly every week. If the boy was warned by some prodromata of pain or weakness in the day, he could stop or lessen his attacks at night.

Hartzig relates a somewhat more complicated case of temporary paralysis in a man who had tertian ague five years before. He

also lost nearly all reaction to electricity during the attack, and the muscles of the head were unaffected. He improved much by treatment with quinine. These five cases had no present signs of intermittent fever about them; no shivering, pyrexia, or enlargement of the spleen, and in four of them there was no history of it. Westphal frankly admits that he cannot interpret his facts, and does not know where to place his case among nervous diseases. There would be a strong inclination to put down the cases to malingering if it were not for the undoubted change in the reflexes and the electrical reactions. It may be correct to call it a paralysis of inhibition. But it would have to be remembered that that goes a very little way towards explanation when we know of no cause for the inhibition.

In one or two cases the tongue was a little affected, and in Hartzig's case the actions of coughing and sneezing. This would lead us to suppose that the exciting cause extended up into the medulla; otherwise the cases were purely spinal.

The only case that would submit to treatment was the one first described (Henri —). Quinine, in large doses, was first used, with doubtful benefit; then strychnin, bromides, and ergotin, without success. Constant currents along the spine, and faradisation of the muscles, seemed to do slight harm. The actual cautery and iodide of potassium led to no change.

The process of treatment by suggestion is what Dr. Cousot would have preferred to use, but, unfortunately, his patient was not amenable to hypnotic influence.—(*Brain.*)

Degeneration of the Peripheral Nerves in Locomotor Ataxia.—Dr. J. C. Shaw has reported to the New York Neurological Society the case of a man, forty-seven years old, who had a typical locomotor ataxia. Following an attack of hæmaturia, he had two epileptic seizures, and died the following day. At the *post-mortem* examination the hæmorrhage was found to have come from the right kidney. Pieces of the sciatic, plantar, and popliteal nerves had been removed for examination—some specimens were stained with osmic acid, and others with bichromate of potassium solution. Changes were found which Dr. Shaw considered distinct from the Wallerian degeneration. These changes consisted in granular degeneration, liquefaction, and even absorption of the myeline sheath, with persistence of the axis cylinder, and in some places a collapsed sheath of Schwann.

IV. NEURO-THERAPY.

The Treatment of Neuralgia in General Practice.—Of all the drugs which have been recommended and tried in the treatment of neuralgia, three are invaluable. They are—morphin, quinine, and iron. In acute attacks of marked severity, morphin is almost indispensable. It is preferably administered, if the patient is seen while severe pain continues, by hypodermic injection. Given by this method, in doses of one-quarter or one-half grain, at the onset, or during the persistence of a paroxysm, the relief which follows is prompt, grateful, and often complete. Thus used, it is always palliative, and sometimes curative—a second attack never occurring. It is, however, rather unusual to see the course of neuralgia immediately arrested by this treatment, if it is commenced after more than one paroxysm has occurred. In these cases it is desirable to prescribe some remedy which is more directly curative. The drug which acts more positively in this direction than any other—which, more justly than any other, might be called a specific—is quinine. It should be given in large doses, and is of value in all cases; but especially in those which are markedly paroxysmal, and most of all in those which are dependent on malarial poisoning.

In a considerable proportion of cases anæmia is not a prominent feature. The patients are well-nourished and full-blooded subjects. In them neuralgia is an expression of an exhaustion of nerve force, perhaps due to cold or over-exertion; or of toxæmia, perhaps malarial; or of some reflex irritation. In the latter cases the removal of the source of irritation is, of course, indicated. In the other cases, in connection with proper hygiene, including, as of the highest importance, rest and good food, a combination of quinine and morphin is of the greatest value. In such cases, seeing the patient in the interval between the paroxysms—when, of course, the hypodermic use of morphin is not indicated—it is often convenient to give the two drugs together. One drachm of sulphate of quinine, and one grain of sulphate of morphin, having been thoroughly mixed, may be divided into twelve powders. Of these, one may be given two or three hours after each meal, and two (or more if necessary) at once one or two hours before the paroxysm is expected.

In another large class of cases anæmia is the predominant characteristic. These cases are often exceedingly obstinate, and likely to recur. For them no drug is more valuable than iron. When given continuously, as the quality of the blood improves, the

neuralgic tendency grows weak. As remedies of secondary value may be classed gelsemium and aconite. They certainly deserve to be ranked as valuable adjuncts to the remedies previously named. The danger of producing unpleasant toxic effects is, however, so great as to render it inexpedient to rely upon either as a single remedy in ordinary cases. The uncertainty in regard to the strength of the various preparations, as manufactured by different pharmacists, is also so great as to constitute a serious hindrance to the general use of either drug. Furthermore, the varying susceptibility of different persons introduces another element of uncertainty. Five-drop doses of the fluid extract of gelsemium, given in connection with quinine and morphin, have, however, proved of great utility. These three together will often give most favourable results.

As remedies of the third class may be mentioned arsenic, nuxvomica, belladonna, phosphorus, and iodide of potassium. These have long been highly commended, but in many instances fail to afford relief. The arsenic is undoubtedly a valuable adjuvant to iron in curing anæmia, and in this way benefits the neuralgia. Similarly, nuxvomica, and its alkaloid strychnin, are of use as stomachic tonics when the general nutrition is impaired by indigestion.—(*Dr. Elliott before the International Med. Congress.*)

Aconitin and Quinine Hydrobromate in Neuralgia.—Crystallised aconitin, when properly used, is one of the most powerful remedies in certain kinds of neuralgia. It is most valuable in so-called "essential" neuralgia, especially facial and trigeminal neuralgia. It is best given in the form of granules, containing a quarter of a milligram of crystallised aconitin, or crystallised nitrate of aconitin; the dose being the same. An interval of four hours should be allowed between the doses—the total quantity of the drug administered in the twenty-four hours not exceeding one milligram. There are forms of obstinate facial neuralgia, however—such as the intermittent variety—which resist the action of aconitin alone, and these likewise prove refractory to quinine alone. In such cases success may be achieved by combining the two drugs. This may be done in pills, as follows:—Hydrobromate of quinine, 10 centigrams; crystallised aconitin, $\frac{1}{4}$ milligram—one pill, containing the above quantities of quinine and aconitin, to be taken every four or five hours.—(*Amer. Practitioner.*)

Antipyrin as an Anodyne.—At a recent session of the Academy of Science, Paris, M. Germain Sée read a memoir on the anta-

gonism of antipyrin to pain. In paroxysms of acute or chronic gout, in the attacks of mild form of rheumatism, the pain disappears rapidly under the influence of sixty or ninety grains of antipyrin, given daily for a week. But it is in nervous troubles, especially in which disturbances of sensibility occur, that antipyrin produces its most marked effects. Facial neuralgia and migraines yield readily under its influence. The darting pains which mark the initial stage of locomotor ataxia are calmed by antipyrin not less than by acetanilide. The former substance has over the latter the advantage of being managed more easily, and of being less dangerous. The agonising pains of heart disease, such as troubles of the aorta, and the cardiac arteries, yield under the influence of sixty to ninety grains of antipyrin. This valuable medicine ought always to be administered in doses of fifteen grains, at intervals of from one to three hours, in half a glass of ice-water. The most serious inconvenience in its employment consists in an eruption like that of scarlet fever, but which readily disappears.—(*Amer. Prac.*)

Another Hypnotic.—Mering announced, before the Strasburg meeting of neurologists, the discovery of a new hypnotic—viz., hydrate of amylen, which represents a tertiary amylic alcohol. The drug has a sp. gr. of 0·8, is little soluble in water, but readily so in alcohol. Mering tested the hypnotic power of the new remedy in sixty different cases; giving it altogether 250 times in paralysis, mental affections, insomnia, caused by nervous excitation, and in some cases of infectious fevers. The dose of hydrate of amylen is from 45 to 75 grains. The sleep induced by it lasts from six to eight hours. The drug has a more pleasant taste than paraldehyde, and produces no after effects. A convenient form of its administration is the following mixture:—

R—Amylen hydrat.	.	.	gr. 60
Extract glycyrrh. liquidi	.	.	ʒi.
Aq. destillat.	.	.	ʒi.
Ft. Haust. Shake well before taking.			

—*Munchener Med. Woch.*

PART IV.
MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SAMUEL GORDON, M.D., F.K.Q.C.P.I.
General Secretary—W. THOMSON, M.D.

SECTION OF PATHOLOGY.

President—J. MAGEE FINNY, M.D.
Sectional Secretary—J. B. STORY, F.R.C.S.I.

Friday, January 11, 1889.

The PRESIDENT in the Chair.

Tumour of the Tongue.

MR. WHEELER submitted a case of lingual tumour.

Epithelioma of the Tongue.

DR. J. A. SCOTT read a paper by Mr. Corley, who was unable to be present, on epithelioma of the tongue.

DR. GRAVES stated that Herr E. Sanger had made 200 experiments with different forms of cancer, and had been unable to get any bacteria at all in connection with them.

The PRESIDENT said it would be recollected that Dr. Charles Ball laid before the Section three specimens of warts that grew on the hands of persons employed in tar and petroleum works in Dublin, and which were followed by epitheliomatous change.

MR. WHEELER, in reply, said he was so convinced that syphilitic deposits were fertile sources of cancer that even where he was perfectly certain that there was no cancerous deposit, infiltration, or contamination whatever in a syphilitic sore, if the change was of comparatively long standing, he would excise; and he believed, in the case of syphilitic deposits, that the change was not due to local irritation, but to the destruction of the tissues by the deposit.

Case of Aneurysm of the Left Sinus of Valsalva.

DR. C. J. NIXON exhibited a specimen in which an aneurysm the size of a small walnut was found engaging the left anterior sinus of Valsalva. The walls of the aneurysm were formed by the valve-segment, and thickened endocardium internally, externally by the epicardium, and below by the muscular wall of the left ventricle, part of which was eroded. The sac of the aneurysm opened into the cavity of the ventricle, so permitting aortic inadequacy. From the opening in the sac of the aneurysm a portion of fibrin projected, which, lying against the anterior flap of the mitral valve, caused a perforation of it the size of a good-sized pea. This opening was of interest in connection with the sign of mitral regurgitation which existed during life. There had been also signs of aortic inadequacy. Dr. Nixon dwelt upon the different forms of cardiac aneurysm and their modes of production.

The PRESIDENT said he had shown for the late Dr. Stokes, years ago, at the Pathological Society an aneurysm of the sinus of Valsalva; but it differed from Dr. Nixon's case. Dr. Stokes showed a case at the old Pathological Society in which the aneurysm communicated with the conus arteriosus and the pulmonary artery—the situation being so far very close to that in Dr. Nixon's case; but then it passed forwards to the left side of the conus arteriosus, and made an aneurysm between the two sides of the heart.

DR. NIXON, in reply, said he could not conceive any physical sign, or combination of physical signs, that would enable a diagnosis to be made of an aneurysm involving the sinus of Valsalva. Dr. Hayden thought there was a sign which was of value in diagnosing aneurysm of the aorta immediately above the sinus of Valsalva—namely, a clear ringing aortic second sound, having a marked character of accentuation, followed by a post-diastolic murmur.

Endothelioma of the Liver.

DR. M'KEE read a paper on a case of endothelioma of the liver, and showed microscopic preparations and drawings. The growth, consisting of small nodular tumours, had originated in the endothelium of the capillaries and small veins. Attention was called to the extreme rarity, if not unique nature, of the case.

Intra-thoracic Sarcoma.

DR. JAS. LITTLE presented a case of intra-thoracic sarcoma, probably originating in the mediastinum, and involving the upper lobe of the right lung.

DR. NIXON did not think there were sufficient grounds for being dogmatic as to a difference in the mental condition of patients suffering from cancer of the mediastinum and thoracic aneurysm respectively.

Specimen of a Rhinolith.

MR. M'WEENEY showed a rhinolith weighing 105 grains. It had been extracted without much difficulty from the nasal fossa of a woman aged about forty-five. The presence of so large a foreign body had caused very little inconvenience beyond the stopping of respiration through the affected side of the nose. Mr. M'Weeney called attention to the rarity of such specimens, and to the brevity and unsatisfactory character of the references to the subject in most of the surgical and pathological textbooks.

ACUTE IODINE POISONING.

DR. W. O. CULPEPPER, of Barbadoes (*Therapeutic Gazette*, Med. and Surg. Dep., Phil., 23rd June, 1888), reports the case of a coloured boy eleven years old, upon whose leg two drachms of some preparation of iodine had been applied on Tuesday, January 17, about 9 p.m., for a skin affection. The application removed all the skin from above the knee to below the ankles upon both legs, leaving a raw surface as though it had been scalded. The same night, and on Wednesday, the child's suffering seemed to be local; but on Wednesday night he was seized with headache, pain in the back over the kidney, pain over stomach and bowels and bladder, and did not appear to have passed water. These symptoms became worse on Thursday, and there was also some diarrhoea and vomiting along with great thirst. The boy says he passed water once, the mother said that he tried several times but did not pass any. On Thursday night the pains seemed to have reached their greatest intensity, and hiccough came on. The slightest movement induced vomiting and hiccough, and there were constant thirst and ineffectual attempts at urination. Dr. Culpepper found the child vomiting, purging, hiccoughing, crying continually for water and bringing it up as soon as swallowed. No loss of consciousness, and no pain complained of except in the head and over the bladder. Temperature 98·8°, pulse rapid, but its force good. The skin was dry, and so were the tongue and buccal mucous membrane. The pupils seemed to be normal. The child complained of being giddy when his head was lifted, and he was said to have fainted away several times. The abdomen was flat, and there was no urine in the bladder; priapism existed. During Saturday he somewhat improved. Iodine was found in the fæces. On the next day he grew worse; stools contained mucus and blood. His symptoms steadily became worse, the pains in the abdomen returned, but the intellect remained clear. He died at 4 a.m. on Monday morning. His mother raised him to let him move his bowels, and soon after he passed away quietly and without pain; before death his stools were said to have become almost pure blood. His lungs were apparently unaffected.

TRANSACTIONS OF THE ULSTER MEDICAL SOCIETY

SESSION 1888-89.

President—H. BURDEN, M.A., M.D.

Hon. Secretary—JOHN M'CAW, M.D.

Inaugural Address on Bacteriology by the President, H. BURDEN, M.A., M.D.:
Pathologist to the Belfast Royal Hospital. Read at the opening of the
Session 1888-89, Wednesday, November 7th, 1888.

GENTLEMEN,—I estimate too highly the privileges I enjoy on becoming the occupant of the post of honour to which your kind indulgence has elevated me, to be able to give adequate expression to my feelings. I must, therefore, content myself by simply asking you to accept my grateful, cordial, and sincere thanks for the confidence you have placed in me. I value my present position so greatly, because this Society has ever been the means of drawing into closer union the best blood of the profession in the North of Ireland, has at all times afforded a platform for the critical discussion of the latest phases in the evolution of medical science, and has created a source from which many practical results and sound doctrines have from time to time emanated.

Rochefoucauld has defined gratitude to be a lively sense of anticipation on the part of the recipient of a favour of the additional benefits he may count upon receiving from the donor in the future. I am free to confess that my gratitude partakes of this character, for I look forward with a keen foretaste of enjoyment to the benefits likely to accrue to me from a participation in your proceedings under such advantageous circumstances as those in which I am now placed. On casting about for a theme suitable to the present occasion I could light upon none that appeared more likely to prove interesting to you than a survey of the present aspect of bacteriology. I feel the more inclined to take up the subject, because, on a retrospective glance at the matters discussed by this Society during several years past, I find that no occasion has been exclusively devoted to its consideration, though several members have alluded to it in connection with other questions; and Dr. Workman, some two years ago, gave us the benefit of his valuable experience in respect of a portion of it. I purpose, then, to pass in brief review the more important of the recent additions to our knowledge of micro-organisms. Whatever may be the ultimate verdict of the profession with regard to the relations they bear to disease, there can be no

question that at the present moment they engross—and will probably for a long time to come continue to command—a very large share of attention, both on the part of the medical world and on that of the general public. The amount of solid work and concentrated thought that has been expended in the endeavour to solve problems in connection with them is without parallel in any single department of medicine. With few exceptions, the micro-organisms which occur as parasites on or in the human body are claimed by botanists to be members of the kingdom over which they preside. Granting this, we nevertheless find that they differ from the higher orders of plants in relying for their material wants chiefly upon organic matter, in being destitute of chlorophyll, and in evolving a large excess of carbonic acid while they consume a corresponding amount of oxygen; all of which attributes, be it observed, assimilate them to animals. They are referred to the group of thallophytes termed fungi, and are included in the following three subdivisions of the latter—namely, hyphomycetes or moulds, blastomycetes or yeasts, and schizomycetes or bacteria. I shall confine my remarks to the schizomycetes, employing, however, the more familiar though less precise synonym—bacteria.

Bacteria are unicellular organisms, composed of a peculiar variety of protoplasm, which Nencki has termed mycoprotein. The periphery of the cell is denser than the interior, and is said to be formed of a substance nearly related to cellulose. This investment resists greatly the action of both acids and alkalies. Bacteria multiply by fission and likewise by spores. The process of cell division sometimes proceeds with such amazing rapidity that, according to Cohn, a single bacterium may produce, in twenty-four hours, 16,000,000 new individuals. Spores may fall into and remain for long periods in a state of dormant vitality, in which condition they are termed resting spores. When placed in circumstances favourable to their development, these resting spores become active again and grow into the characteristic form of their parents. A well-ascertained fact of great practical importance with regard to spores is that they are much less easily destroyed by high and low temperatures, or other germicidal influences, such as the action of the various antiseptics, than the mature forms. Thus, for example, while a temperature above 60° centigrade kills the majority of the adult forms, their spores may continue to live when the thermometer indicates a temperature far above the boiling point of water. The forms presented by bacteria are the round, the oval, the spiral, and the rod-like. Sometimes these are produced into long, jointed filaments, or give rise to colonies in which the individuals are held together by a jelly-like substance. In the case of some bacteria, the same individual has been observed to assume very different forms at successive stages of its life. Ray Lancaster, many years since, showed this to be the course of events

in the life history of *bacterium rubescens*. It is also a fact familiar to microscopists that an infusion in which micro-organisms are growing may exhibit a preponderance of some particular form at one period, while at a later stage the fluid swarms with a widely different form to the almost entire exclusion of that one first seen. These and similar phenomena have led many excellent authorities to the conclusion that a transmutation of one species into another is of common occurrence. Büchner, indeed, affirms that he has succeeded in changing hay bacillus—a non-pathogenic species—into the bacillus of anthrax by cultivating the former in infusions of meat. Koch, however, in vain endeavoured to obtain the results arrived at by Büchner. The evidence in favour of a mutability of species is regarded by Cohn and Koch as falling far short of demonstration, and the numerous pure cultivations carried on daily in bacteriological laboratories tend to confirm the views on this question entertained by these trustworthy observers. A large majority of authorities now, therefore, assume permanence of species to be a well-founded doctrine; nevertheless, seeing that the life histories of comparatively few bacteria have been thoroughly worked out, it would be rash to dogmatise on the subject. The possibility that a ubiquitous species like hay bacillus may, under such readily-obtainable conditions as those supplied by Büchner, adopt in exchange for its harmless character the virulent properties of anthrax bacillus, renders it desirable to investigate the problem with the utmost rigour. Bacteria have been met with nearly everywhere when carefully searched for. River water, spring water, rain water; even, according to Klein, distilled water contains them. Any fragment of earth transferred from the surface of the soil to a sterilised culture medium soon produces an abundant crop of them. The air teems with them to such a degree that in the densely-inhabited quarters of towns the mere pouring of a sterilised nutritive fluid from one flask into another is sufficient to ensure their appearance in the latter. The air on high mountains above the snow-line, or over the ocean far from land, is probably free from them. The surface of the healthy body is a resting-place for numerous bacteria. The larger bronchial tubes contain many, but Tyndall entertains the opinion that the smaller tubes and the air vesicles are free from them, because complementary air, driven from the lungs across the path of a beam of electric light in a dark room, is instantly detected by its non-luminous track.

From its commencement to its termination the alimentary canal harbours micro-organisms, all, without doubt, introduced into it from the outer world through the medium of solid food, drink, and otherwise. The conclusion that this is the source from which they are derived is confirmed by the researches of Letzerich, who found that the meconium of infants who have not yet breathed yields none, though a very short time after birth they can be detected in the intestinal contents. In the cavity

of the mouth a great variety of forms have been observed. Miller describes twenty-five.

The assertion made by Lister several years ago, that no species are discoverable in the healthy urinary passages, has been substantiated by many others. A host of the most expert bacteriologists have been at great pains to ascertain whether or no the minute beings under consideration infest the normal tissues or blood of man. Ballance and Shattock recently instituted inquiries having the solution of this problem in view, and have decided that the evidence is strongly in favour of their non-existence in those situations. Though the opponents to this decision are neither few, nor by any means despicable, yet they constitute a clear minority. An aid to the solution of this question, which is evidently one of vast importance, is furnished by the results of experiments in which septic bacteria, artificially introduced into sound tissues and blood, soon perished.

As in the case of other living beings, bacteria cannot continue the active exercise of their functions unless their environment supply certain essential conditions, such as moisture, appropriate food, and a temperature neither too low nor excessively high. They display, however, a remarkable aptitude for maintaining their vitality during long periods in a dormant or quiescent state, in the absence of either food or moisture, or both, and some can resist the adverse influence of an extremely low temperature. Anthrax bacillus has been known to survive a temperature of minus 140° centigrade.

Their food consists largely of proteinaceous matters, hence the non-pathogenic species find their most congenial soil in the dead bodies of animals and plants, or in the products of their decomposition, while the pathogenic forms flourish in the living tissues and fluids of their hosts. Most of them show a marked predilection for a special nutritive medium. Thus, the bacillus of tubercle is with difficulty cultivated outside of the living body in any other fluid than blood serum. An experiment of Naegeli shows how an apparently slight change in the nature of the soil may affect injuriously, or the reverse, the life of minute organisms. He found that in a neutral liquid, holding sugar in solution, and in which moulds, yeasts, and bacteria were present, the bacteria soon began to predominate, and give rise to lactic acid fermentation—on adding half per cent. of tartaric acid, yeasts prevailed; and when 4 to 5 per cent. of tartaric acid was mixed with the fluid, moulds got the upper hand. In the artificial cultivation of bacteria it makes a material difference whether the medium employed be acid or alkaline, even a slight excess of acid being detrimental to the growth of the greater number. Again, Koch found that while he could, by inoculation with certain bacteria, bring about septicæmia in the house-mouse, he was unable, by introducing the same organisms into the bodies of field-mice, to produce a similar effect;

a result paralleled by the well-known difference in the susceptibility of different human individuals to the poison of specific diseases, supposed to owe their origin to micro-organisms.

Simple though they appear to be in form and structure, minute to the verge of visibility, even with the aid of the highest powers of the microscope, few of them endowed with the power of locomotion, yet to the vital actions of the infinite host of bacteria are now ascribed injurious and destructive effects upon the higher forms of organic matter, both living and dead, undreamt of by the most speculative philosophers until quite recent times. They are to-day believed to be the cause of all putrefactive processes, of fermentations, and some of the most damaging and deadly of the diseases that the human race is subject to. In discussing the relations that bacteria bear to disease, it has been found convenient to consider them under the following heads, namely—septic, zymogenic, and pathogenic bacteria.

Most of the septic bacteria are unable to establish themselves in living tissues or fluids, and when they are designedly placed in these situations by the pathological inquirer, they soon die. They usually occur only in connection with wounds and ulcers, or abscesses and gangrenous parts to which the air has access. Being the supposed efficient agents in the production of putrefaction, and few localities being devoid of their presence, it is obvious that the lesions just named are momentarily liable to be invaded by them and become putrescent, unless they be protected by efficient antiseptic dressings, or kept free from dead and putrescible matter by drainage tubes and the strictest cleanliness. Septic bacteria are alleged to give origin to those poisonous alkaloids—the ptomaines, which are found in proteid substances undergoing putrefaction. The widely-distributed bacterium termo, familiar to all bacteriologists, may be quoted as an easily-obtainable and characteristic example of the septic group. Zymogenic bacteria are so called because they effect certain chemical changes in organic matter analogous to those that lead to the formation of alcohol. Articles of food and some of the secretions are the seats of their special activities, so that they are objects of interest more from a chemical than from a pathological point of view. A well-known example is the micrococcus ureæ, which converts urea into carbonate of ammonium.

But the micro-organisms which have excited the deepest and most wide-spread attention are unquestionably the pathogenic bacteria. Pathogenic bacteria are intimately associated with specific diseases, in many cases standing, it is believed, to the latter in the relation of cause to effect. Koch, however, warns us that in no instance can it be said to have been satisfactorily proved that a particular infectious disease is due to a particular micro-organism, if any of the following conditions remain unfulfilled:—(1) It is absolutely necessary that the micro-organism in question be present either

in the blood or the diseased tissues of man, or of an animal suffering or dead from the disease. (2) It is necessary to take these micro-organisms from their nidus—from the blood or tissues, as the case may be, to cultivate them artificially in suitable media—i.e., outside the animal body, but by such methods as to exclude the accidental introduction into these media of other micro-organisms; to go on cultivating them from one cultivation to another for several successive generations, in order to obtain them free from every kind of matter derived from the animal body from which they have been taken in the first instance. (3) After having thus cultivated the micro-organisms for several successive generations, it is necessary to re-introduce them into the body of a healthy animal susceptible to the disease, and in this way to show that the animal becomes affected with the same disease as the one from which the organisms were originally derived. (4) And finally, it is necessary that in this so affected new animal the same micro-organism should again be found.

Through this trying ordeal many bacteria have passed, and turning up unscathed at the last stage of the process, have thus manifested at once their remarkable vitality, and the leading part they play in the causation of the diseases with which they are associated. But on attempting to submit some of them to these exacting tests, bacteriologists have encountered obstacles which, up to the present time, have proved insuperable. The bacillus of leprosy, for example, cannot be induced to grow and multiply in any medium yet provided for it outside the body of its host. Then again, every animal yet tried has refused to take the disease when inoculated with the bacillus of cholera.

Sufficient evidence is not forthcoming that the bacteria of infectious diseases ever penetrate the uninjured skin. There can, on the other hand, be little doubt that they gain access to the deeper parts by means of open wounds or abraded surfaces, and that they pass through the mouth and nose into the lungs or alimentary canal. Having once obtained admission into the body, a struggle for the ascendancy, probably in all cases, begins between them and the tissues. If the tissues be strong and healthy and the bacteria weak, so much the worse for the latter; but if the bacteria be vigorous and the vitality of the tissues depressed, then the bacteria become masters of the situation. They may now be arrested in their progress and manifest their presence by local lesions, or, having reached the blood-vessels or lymphatics, they may be conveyed by the circulation of those fluids to distant parts of the body. In the vessels they have been observed to cause coagulation of the blood. Fragments of the coagula so formed enclosing them in their meshes are liable to become detached and carried away by the blood-stream to smaller vessels or the capillaries, where, in the form of emboli, their career is cut short. The bacteria contained in these emboli become fresh centres of infection. The interior of leucocytes and the fixed protoplasmic corpuscles of the

tissues appear to be an occasional *habitat* of bacteria. Whether the former engulph the latter in the same manner that the amoeba swallows its prey, or the micro-organisms are themselves active agents in their transfer to those situations is difficult to determine. Metchnikoff's observations may help to a solution of the question. In the frog he has been an eye-witness to the deglutition and apparent digestion of the anthrax bacillus by leucocytes, and certain cells of large size on which he has conferred the epithet phagocytes.

Do bacteria bring about the injurious effects attributed to them owing to the irritation produced by their mere presence, or by catalysis, or through the medium of a poison which they are supposed to elaborate, or by setting up a process analogous to fermentation? My answers must be brief.

Simple irritation seems insufficient to account for the phenomena. Catalysis, as commonly understood, is, in my opinion, a meaningless term. Fermentation does not appear to furnish a plausible explanation; but there are substantial grounds for the belief that certain poisons are generated by the vital actions of these micro-organisms, and that to them are chiefly due the pathological events that follow the introduction of the latter. These poisons have not yet been isolated; but it is worthy of note that in putrefaction bacteria are believed to be instrumental in the formation of the ptomaines—alkaloids producing symptoms of poisoning very similar to some of those observed in infectious diseases.

If the spread of infection be really due to the conveyance of specific organisms from one person to another, it is obvious that the organisms must, previously to their transference, have been eliminated from the bodies of the sick. Careful search has been made in the excretory organs and their excretions for micro-organisms. The bacillus of tubercle has been discovered in the expired air of phthisical patients. The intestinal evacuations of cholera and typhoid fever have yielded the bacilli peculiar to those diseases. An examination of kidneys removed from persons who have died of pyæmia, diphtheria, and scarlet fever has disclosed characteristic micrococci. The desquamated epithelial cells of scarlatina exhibit micrococci; but that these are specific cannot be positively affirmed. Through what variety of being micro-organisms pass during the intervals between their lodgments in the bodies of their successive hosts, unless their change of residence be more or less expeditious and direct, can scarcely be said to have been definitely ascertained as regards any.

The classification of bacteria is admittedly in an unsatisfactory condition, arising from the following circumstances:—(1) The close similarity in form, size, and structure of different species. (2) Their excessively minute size, which only permits of approximate measurements. (3) The probability that the same species may vary in size in consequence of

differences in the nature of its environment. (4) The different forms assumed by some species at successive stages of development. (5) Our ignorance of their complete life-histories. On the other hand, it is true that we are aided in our discrimination of species by observing the manner in which chemical re-agents and stains act upon them, the characteristic figures that aggregations of them assume in culture media, and their pathological effects. Several elaborate classifications have been proposed, and more or less extensively adopted; but as none of them are likely to remain long in use, a simple classification founded on peculiarities in form, is, for the present at least, preferable.

I would therefore refer all pathological species of bacteria to the four following groups, viz. :—(1) Sphaero-bacteria, of which micrococcus is an example. (2) Micro-bacteria, with bacterium as its type. (3) Desmo-bacteria, claiming bacillus as a member. (4) Spiro-bacteria, including the characteristic genus, spirillum. Various other cross-divisions are occasionally employed for special purposes. Thus, Pasteur has divided bacteria into those that flourish only when exposed to the influence of the atmosphere and a group that thrives well in the absence of air. The former he terms aerobic, and the latter anaerobic. In a short *resumé*, such as the present sketch must necessarily be, it would impossible to attempt even a passing allusion to every micro-organism that has been held accountable for disease. I shall then, in illustration of the foregoing general remarks, limit myself to a detailed account of three. The three I have selected are—the bacilli of anthrax, of tubercle, and of cholera. The first, because its life-history has been more fully elucidated than that of any other; the second on account of its paramount importance; and the third, seeing that a vast amount of attention and research has recently been devoted to it.

Bacillus anthracis is a species of the order desmo-bacteria. It inhabits the bodies of men and animals suffering from the disease variously termed anthrax, splenic fever, wool-sorters' disease, malignant pustule, charbon, Siberian plague—where it is met with chiefly in the blood, and more especially in the blood of the spleen. This organism exhibits a cylindrical or rod-like form, with slightly concave ends, and is of large size, measuring from 5 to 50 micrometres in length, while its short diameter averages 1 micrometre. It multiplies rapidly by division in the blood of its host, or when cultivated at a temperature of between 15° and 43° centigrade in suitable media. In the latter situation the rods produce in their interior highly-refracting, brilliant, oval bodies. These, which are the spores, measure about 1 micrometre in breadth, and 2 to 3 micrometres in length. They are not easily stained by ordinary dyes, but when treated with a hot solution of fuchsin for twenty minutes they assume a red colour.

This bacillus needs air for its complete development, and comes there-

fore under Pasteur's aerobic division of micro-organisms. It is incapable of spontaneous movement. According to Klein, any fluid containing proteid matter is a suitable nutritive medium for it. During cultivation in such media the bacilli grow out into long, jointed and convoluted filaments, often twisted together like the strands of a rope. Freezing arrests the development of the rods, but does not deprive them of life. Drying and a temperature under the boiling point of water kills them. Spores, on the other hand, retain their vitality when dried, and resist a temperature of 100° centigrade for fifteen minutes when moist, but for an hour if dry. A very minute quantity of blood, taken from an animal ill of anthrax, when inoculated into a rodent, reproduces the disease in it; the animal usually dies in about forty-eight hours. Bacilli from its blood, after propagation through many generations, ultimately yield a pure cultivation. A susceptible animal, inoculated with this product, takes the disease, and in its blood bacilli can easily be detected. The majority of rodents and herbivora are very susceptible to infection. Rats, though rodents, are not readily infected; pigs, dogs, and cats are infected with the greatest difficulty. The bacilli have been, for the most part, observed in the blood, the capillaries of the spleen, lungs, kidneys, and indeed of nearly every organ in the body, being often packed full of them. The histological elements are seldom invaded. Malignant pustule is, however, at first a strictly local lesion, and if the diseased part be removed early the bacilli may never appear in the blood. These micro-organisms may enter the body through the medium of the lungs, the alimentary canal, or wounds and abrasions of the integument and mouth. Koch produced anthrax in sheep by feeding them with potatoes containing spores. Wool-sorters' disease arises from the inhalation of spores, detached from the fleeces of animals that have died of anthrax, by persons handling them. Malignant pustule—which has an origin similar to that of the last-named disease—attacks the exposed parts of the body, usually the hands and face, the bacillus probably reaching the subcutaneous tissue through some breach in the skin.

Bacilli are believed to be in some cases conveyed by flies, and on other occasions by the teeth of dogs that have eaten the flesh of the infected animals. Direct transference of bacillus anthracis from individual to individual rarely occurs, so that the parasite commonly leads a longer or shorter independent existence from the time that it leaves one host until it reaches the next. Now spores are not formed while it is in the living body, consequently when it becomes free it is liable to speedily perish by drying up or otherwise. If, however, it be at once exposed to the combined influence of the air, moisture, the organic matter of the soil, and a high temperature, it produces spores, and these can survive the vicissitudes of climate for more than a year. Summer heat returning, the spores germinate, and yield a new crop of bacilli. The blood, excretions,

or carcase of an animal that has died of anthrax, may thus furnish a centre of infection in the pasture during a succession of years. Judging from Klein's observations in the case of mice and guinea-pigs, if the dead bodies of infected animals were, without delay, buried deeply in the soil, the bacilli would die without the formation of spores within a couple of weeks, owing to the absence of a free supply of air. Pasteur's assertion that spores are formed in the buried bodies of infected animals, and are brought to the surface by earth-worms, seems to have been disproved by the researches of Koch and others.

By cultivating anthrax bacilli under special conditions, Pasteur has succeeded in modifying their virulent properties in such a manner that, on inoculating them into cattle, the latter, after having suffered only slight injury from the operation, are rendered insusceptible of the disease for a year or more. The bacilli thus changed in character he terms attenuated virus. One of the processes by which Pasteur effects attenuation consists essentially in the cultivation of the bacilli in chicken broth freely exposed to the air, while the temperature is carefully kept at about 108° Fahrenheit. Chauveau brought about attenuation by heating bacilli to 52° centigrade for a quarter of an hour. Toussaint obtained a similar result by applying a temperature of 130° Fahrenheit for ten minutes. Chamberland has succeeded in securing attenuation by the action of weak carboic acid. Klein has directed attention to the noteworthy fact that anthrax bacilli, in passing through different species of animals, become endowed with different qualities. He writes:—"While, for instance, the blood bacillus of sheep or cattle dead of anthrax invariably produces death when inoculated into sheep or cattle, after passing through white mice it loses this virulence for sheep and cattle."

The bacillus of tubercle is one of the desmo-bacteria. It has been so uniformly detected in all varieties of tubercle when carefully sought for, that few pathologists now venture to deny that, if not the actual cause of, it is at least intimately associated with, the tubercular lesion. It presents the appearance of a very minute rod, 2 to 5 μ in length by 3 to 8 μ in breadth. The extremities of the rod are convex. Stained specimens show clear spots, which were at first taken for spores, but the true nature of which have not yet been satisfactorily determined. Sometimes the rods bear a very close resemblance to a linear series of micrococci. Their cultivation exacts great care and special media, in which respects they differ remarkably from anthrax bacillus. Small portions of tubercle containing them, when placed on blood serum rendered solid by gelatine and sterilised, slowly develop, if the temperature do not vary much from 100° Fahrenheit, into plates or scales of a dull white colour. These scales are found, on microscopical examination, to be composed of bacilli, placed end to end so as to form curved lines. The most favourable temperature for cultivation is about 99.5° Fahrenheit,

and development ceases when the thermometer falls to 82° , or rises to 108° . Tubercle bacilli are apparently, like those of anthrax, incapable of voluntary motion. A temperature of 212° Fahrenheit kills them in fifteen minutes if they be kept moist, but should they be dry they may retain their vitality for half an hour or an hour. They are destroyed by various germicides—as, for instance, a one per thousand solution of perchloride of mercury, and a five per cent. solution of carbolic acid. There is no proof that they enter the body through wounds or abrasions of the skin, but their introduction into the alimentary canal with food, and into the lungs in atomised fluids, has induced tubercle in the animals experimented upon. When they gain admission to the tissues of the body they spread, according to Baumgarten, through the agency of leucocytes, but in the opinion of others by means of the lymph spaces and vessels. Their relations to the giant cells of tubercle has been much canvassed. They have been supposed by their presence to cause the formation of these corpuscles. Now, no valid reason can be advanced why we should look upon the giant cell as a structural feature distinctive of tubercle, or assign to it a leading part among the morbid processes that take place in this lesion. Well-formed giant cells are met with in many tissues, both healthy and diseased—for instance, in the red marrow of fully-formed bone, in osseous tissue during its growth and also whilst undergoing removal either physiologically or pathologically, in the spleen, in myeloid sarcoma, in syphilitic gummata, and among the products of many non-specific inflammatory actions. Again, while in cattle, poultry, and horses bacilli are very numerous in giant cells, they are very rarely observed in that situation in the human subject. Payne says that he has never seen bacilli in the giant cells of human tubercle, and that other observers of large experience have confirmed this negative result. Meigert thinks that the bacilli penetrate the walls of veins, and thus reaching the blood-current, are carried to distant parts and cause general infection. Koch, in a case of acute tuberculosis, discovered them in the wall of an artery, and from that circumstance inferred that they may enter the arterial circulation, and thus become widely disseminated. Koch's classical experiments, undertaken with a view to the determination of the precise connection of tubercle with bacillus, though numerous and varied, may, in general terms, be described in a few words. He placed a minute fragment of tubercle containing the micro-organism on an appropriate soil and obtained an abundant crop. A few bacilli were removed from this cultivation to a fresh medium, where they multiplied a thousand-fold. A small fraction of this growth was transferred to a new culture ground, and the process repeated again and again until the organisms were practically cleansed from every particle of the foreign matter that they originally carried with them. From the pure cultivation procured in this way a portion

was taken and inoculated into the body of a healthy animal, in which, thereafter, the characteristic lesion appeared. Lastly, the tubercular matter in this animal, when subjected to microscopical examination, exhibited the bacillus. A host of competent observers have confirmed Koch's statements, so that there can be little question of their trustworthiness. Some species of animals suffer from the injurious effects of tubercle bacillus to a greater degree than others. In inoculation experiments, for instance, the greater number of rodents are easily infected, and ruminants, though less susceptible than rodents, are more so than dogs and cats. Different human individuals are clearly not equally susceptible, else few could escape infection. The following passage in Klein's work on micro-organisms is interesting from several points of view:—"According to my own experience, extending over a very large number of cases of human miliary tuberculosis and tuberculosis in cattle, I cannot for a moment accept the statement that the bacilli found in the two affections are identical; for I find that in the two diseases their morphological characters and distribution are very different."

Whereas anthrax bacillus is capable of leading an active non-parasitic existence, there is reason to believe that the bacillus of tubercle is a true parasite, its vitality outside the living body of an animal remaining in a dormant condition until a new victim is secured. Leaving out of view other considerations, we need only recall to mind the difficulty with which its growth and multiplication are artificially induced to be convinced that the soil and climate of our own country at least do not supply either a nutritive medium suited to its wants, or that high and uniform temperature apparently so essential to its activity. Nevertheless, the bacilli in the dried condition retain their vitality in a potential state for a long time, even when subjected to great variations of temperature. Those expelled from the lungs in sputa or with the breath lose their germinative capacity after about six months.

The micro-organism formerly termed cholera bacillus, and regarded as a desmo-bacterium, is now by many authorities referred to the order spiro-bacteria, under the new title spirillum cholerae Asiaticæ. The cholera reports of Strauss and the French Commission, and the German Commission with Koch at its head, are still fresh in our memories. It was in the sixth report that Koch announced his discovery of the cholera bacillus. Its form is that of a curved rod from $\cdot 8$ to 2μ long, and from $\frac{1}{3}$ to $\frac{1}{2}$ of this measurement in thickness. The name comma bacillus, by which it is widely known, is evidently derived from its shape. When several are united end to end they form a spiral filament. They are endowed with the power of spontaneous motion, which is both rotatory and progressive. No internal spores have been clearly demonstrated. This micro-organism is without difficulty cultivated in a great variety of media—for instance, on gelatine, agar-agar, and potato; likewise in

milk, broth, and blood serum. The media must be neutral or slightly alkaline; in an acid medium it will not grow. Its optimal temperature is from 84° to 104° Fahrenheit. When the temperature is reduced below 60° development ceases, though the organism still continues to live until the thermometric reading is considerably below the freezing point. Drying quickly kills this spirillum—a fact well worth bearing in mind. Long before the discovery of a specific organism the medical profession had with wonderful unanimity arrived at the conclusion that the materies morbi of cholera was conveyed to the alimentary canal of patients by means of drinking water, especially such as was contaminated by the entrance into it of the intestinal evacuations of persons already suffering from the disease. It was therefore with feelings of considerable satisfaction that they learned from Koch his discovery of comma bacillus in a water tank at Calcutta, in the neighbourhood of which cholera was known to exist. On the other hand, Klein, Gibbes, and Cunningham have met with comma bacillus in tanks and on water plants where there was no reason to suspect that it had anything to do with the causation of the malady. In connection with this question an important fact has been ascertained by experiment—namely, that the bacillus may remain in spring water for seven months and still be capable of development if placed in a congenial soil. Even in distilled water it may retain its vitality for at least ten weeks. Having gained admittance into the alimentary canal, the bacillus appears, in most cases, to be confined to that region, rarely penetrating the wall of the intestine. It has seldom been detected in the blood or tissues, and when artificially introduced into the blood it speedily disappears. Organisms so similar to the comma bacillus in form as to be indistinguishable from it by the microscope have been seen in cholera nostras, in the intestine of guinea-pigs, in the mouth, and in dejecta from the bowels of persons in good health. But the peculiar form and mode of growth of the cholera bacillus in culture media is said to distinguish it from all others. Granting this, it has never been met with in any other disease than Asiatic cholera, in consequence of which circumstance it is looked upon as a diagnostic indication. Although its existence and its presence in cholera are admitted by nearly all qualified observers, yet much difference of opinion prevails as to its relation to that affection, Koch and Virchow holding it to be the cause of the latter, while Klein and many others believe that this position is, in the present state of our knowledge, untenable. A very significant gap in the chain of evidence is the fact that no animal yet experimented upon, with the doubtful exception of the guinea-pig, exhibits symptoms which bear even a remote resemblance to cholera. The dejecta from cholera patients have been administered with their food to pigs, dogs, cats, and monkeys, yet the effects have not been such as to justify the opinion that they were cholera-stricken. Subcutaneous injection of the

bacilli from various sources proved equally inefficient. In guinea-pigs alone have symptoms been observed which, taking into account the, in many respects, vast difference between their organisation and that of man, might be regarded as choleraic. Comma bacillus probably produces its evil effects by elaborating a poison which is absorbed through the intestinal walls.

And now it is full time that I brought my discourse to a close. In doing so I would remark that though what I have said may possibly seem slight and sketchy, nevertheless it is the result of much sifting of a considerable amount of conflicting evidence. I have, in fact, as Huxley puts it, endeavoured to play the part of a sieve, and to separate the well-established and essential from the doubtful and unimportant portions of the subject. In bacteriology, "there is," in Foster's words, with reference to another science, "a zone of strife where truth and error mingle in conflict, and where the results of yesterday have power because they are new. This agonosphere is merely the envelope of a solid nucleus of acquired truth which, year by year, grows larger at the expense of its more fluid and gaseous wrappings."

It has been my aim throughout this address to keep, as far as possible, clear of the zone of contention.

TREATMENT OF ABSCESS.

DR. HUBBARD (*New York Medical Journal*, October 13th, 1888) advises the following treatment once suppuration has set in:—The skin over the abscess, and for some distance round it, is first thoroughly cleansed with soap and water—a solution of bichloride of mercury, 1 in 2,000, being subsequently applied. An alcohol bath may then be given. An incision with a sterilised knife is then made—it should be large enough only to give moderately free exit to the pus, and permit the easy entrance of the small nozzle of a syringe. The pus should be slowly evacuated by moderately firm pressure until it ceases to flow. Then the cavity should be thoroughly irrigated with the bichloride solution (1 in 2,000 or 4,000) until it runs out perfectly clear; if the abscess is large a tube or seton is necessary. Antiseptic dressing is then applied; the first dressing should be removed in twenty-four hours. If there is pus the cavity should be again irrigated. The author claims that, "as a rule, under this plan, even the skin wound will be healed at the end of seventy-two hours."

CRAMPS IN THE LEGS.

DR. THOS. H. URQUHART, from personal experience, declares that the aqueous extract of ergot cured, in doses of three to four grains, cramps in his legs for which he had unsuccessfully tried electricity, exercise, and so forth.—*St. Louis Medical and Surgical Journal*, Vol. LV., No. 2.

SANITARY AND METEOROLOGICAL NOTES.

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VITAL STATISTICS

For four Weeks ending Saturday, December 29, 1888.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

Towns	Weeks ending				Towns	Weeks ending			
	Dec. 8.	Dec. 15.	Dec. 22.	Dec. 29.		Dec. 8.	Dec. 15.	Dec. 22.	Dec. 29.
Armagh -	31·0	25·8	36·1	15·5	Limerick -	24·3	17·5	20·2	25·6
Belfast -	20·4	20·2	24·1	28·0	Lisburn -	24·2	43·5	24·2	4·8
Cork -	20·8	20·8	27·3	24·7	Londonderry	14·3	14·3	23·2	7·1
Drogheda	25·4	8·5	21·1	12·7	Lurgan -	10·3	25·7	5·1	10·3
Dublin -	26·3	26·0	30·1	20·2	Newry -	14·0	10·5	17·6	17·6
Dundalk -	30·6	34·9	26·2	21·8	Sligo -	9·6	43·3	9·6	9·6
Galway -	20·2	16·8	28·5	6·7	Waterford -	9·3	18·5	4·6	13·9
Kilkenny	29·6	25·4	29·6	8·5	Wexford -	4·3	8·6	17·1	4·3

In the week ending Saturday, December 8, 1888, the mortality in twenty-eight large English towns, including London (in which the rate was 17·8), was equal to an average annual death-rate of 18·6 per 1,000 persons living. In Glasgow the rate was 20·9; and in Edinburgh it was 15·6.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 22·4 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·6 per 1,000, the rates varying from 0·0 in nine of the districts to 15·5 in Armagh. The 6 deaths from all causes registered in that district comprise 3 from measles. Among the 89 deaths from all causes registered in Belfast are 2 from scarlatina, 1 from whooping-cough, 4 from enteric fever, and 7 from diarrhoea.

The 32 deaths in Cork comprise 1 from typhus and 5 from whooping-cough. Among the 18 deaths in Limerick are 4 from scarlatina and 1 from diarrhoea; and the 7 deaths in Dundalk comprise 2 from scarlatina.

In the Dublin Registration District the births registered during the week amounted to 186—96 boys and 90 girls; and the deaths to 183—93 males and 90 females.

The deaths represent an annual rate of mortality of 27·0 in every 1,000 of the estimated population. Omitting the deaths (5 in number) of persons admitted into public institutions from localities outside the district, the rate was 26·3 per 1,000.

Fifteen deaths from zymotic diseases were registered, being 1 over the low number for the preceding week, but 12 under the average for the 49th week of the last ten years. They comprise 1 from measles, 1 from scarlet fever (scarlatina), 1 from whooping-cough, 1 from diphtheria, 8 from enteric fever, 1 from diarrhoea, &c.

Fourteen cases of enteric fever were admitted to hospital, being equal to the admissions for the preceding week. Nine enteric fever patients were discharged, 1 died, and 61 remained under treatment on Saturday, being 4 over the number in hospital on Saturday, December 1.

Six cases of scarlatina and 1 of typhus were admitted to hospital against 3 cases of each of those diseases admitted during the preceding week. Twenty cases of scarlatina and 6 of typhus remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered is 36, being 21 below the average for the corresponding week of the last ten years, and 3 under the number for the week ended December 1. The 36 deaths comprise 26 from bronchitis and 8 from pneumonia or inflammation of the lungs.

In the week ending Saturday, December 15, the mortality in twenty-eight large English towns, including London (in which the rate was 17·7), was equal to an average annual death-rate of 18·9 per 1,000 persons living. In Glasgow the rate was 20·9; and in Edinburgh it was 14·1.

The average annual death-rate in the sixteen principal town districts of Ireland was 22·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·9 per 1,000, the rates varying from 0·0 in eleven of the districts to 4·8 in Sligo. The 9 deaths from all causes registered in the last-named district comprise 1 from enteric fever. Among the 88 deaths from all causes registered in Belfast are 2 from diphtheria, 1 from simple-continued fever, and 3 from enteric fever. The 32 deaths in Cork comprise 4 from whooping-cough; and the 8 deaths in Londonderry comprise 1 from diphtheria and 1 from diarrhoea.

In the Dublin Registration District the births registered during the week amounted to 185—107 boys and 78 girls; and the deaths to 180—92 males and 88 females.

The deaths represent an annual rate of mortality of 26·6 in every 1,000 of the estimated population. Omitting the deaths (4 in number) of persons admitted into public institutions from localities outside the district, the rate was 26·0 per 1,000.

Twenty-four deaths from zymotic diseases were registered, being 9 over the low number for the preceding week, but 5 under the average for the 50th week of the last ten years. They comprise 4 from measles, 3 from scarlet fever (scarlatina), 2 from typhus, 2 from whooping-cough, 1 from diphtheria, 6 from enteric fever, 1 from diarrhoea, 1 from erysipelas, &c.

The number of cases of enteric fever admitted to hospital during the week is 13, being a decrease of 1 as compared with the admissions for each of the two weeks preceding. Ten enteric fever patients were discharged, 1 died, and 63 remained under treatment on Saturday, being 2 over the number in hospital on Saturday, December 8.

Six cases of scarlatina and 3 of typhus were admitted to hospital against 6 cases of the former and 1 of the latter disease admitted during the preceding week. Twenty-three cases of scarlatina and 7 of typhus remained under treatment in hospital on Saturday.

Thirty-seven deaths from diseases of the respiratory system were registered, being 1 over the number for the preceding week, but 27 under the average for the 50th week of the last ten years. They comprise 24 from bronchitis, 5 from pneumonia or inflammation of the lungs, and 2 from croup.

In the week ending Saturday, December 22, the mortality in twenty-eight large English towns, including London (in which the rate was 22·0), was equal to an average annual death-rate of 22·2 per 1,000 persons living. In Glasgow the rate was 22·6; and in Edinburgh it was 16·2.

The average annual death-rate represented by the deaths registered last week in the sixteen principal town districts of Ireland was 25·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·3 per 1,000, the rates varying from 0·0 in eight of the districts to 10·3 in Armagh—the 7 deaths from all causes registered in that district comprising 1 from measles, and 1 from whooping-cough. Among the 105 deaths from all causes registered in Belfast are 1 from scarlatina, 1 from whooping-cough, 3 from enteric fever, and 2 from diarrhoea. The 42 deaths in Cork comprise 1 from scarlatina, 1 from typhus, 4 from whooping-cough, and 1 from diph-

theria. Among the 15 deaths in Limerick are 2 from scarlatina, and the 7 deaths in Galway comprise 1 each from typhus and diarrhoea.

In the Dublin Registration District the births registered during the week amounted to 168—101 boys and 67 girls; and the deaths to 209—104 males and 105 females.

The deaths represent an annual rate of mortality of 30.9 in every 1,000 of the estimated population. Omitting the deaths (5 in number) of persons admitted into public institutions from localities outside the district, the rate was 30.1 per 1,000.

The number of deaths from zymotic diseases registered is 23, being 7 below the average for the corresponding week of the last ten years, and 1 under the number for the week ended December 15. The 23 deaths comprise 3 from measles, 1 from scarlet fever (scarlatina), 1 from typhus, 7 from whooping-cough, 1 from diphtheria, 1 from ill-defined fever, 3 from enteric fever, 1 from diarrhoea, 2 from erysipelas, &c.

Only 7 cases of enteric fever were admitted to hospital during the week, against 13 for the week ended December 15, and 14 for each of the two weeks preceding. Eleven enteric fever patients were discharged during the week, 1 died, and 58 remained under treatment on Saturday, being 5 under the number in hospital on Saturday, December 15.

Six cases of scarlatina have been admitted to hospital in each of the last three weeks; 25 cases of the disease remained under treatment in hospital on Saturday, December 22.

Two cases of typhus were admitted to hospital, being 1 under the admissions for the preceding week. Only 5 cases of the disease were in hospital at the close of the week.

Thirty-nine deaths from diseases of the respiratory system were registered, being 2 over the number for the preceding week, but 29 under the average for the 51st week of the last ten years. They comprise 24 from bronchitis, and 8 from pneumonia or inflammation of the lungs.

In the week ending Saturday, December 29, the mortality in twenty-eight large English towns, including London (in which the rate was 20.0), was equal to an average annual death-rate of 20.8 per 1,000 persons living. In Glasgow the rate was 24.6; and in Edinburgh it was 16.2.

The average annual death-rate in the sixteen principal town districts of Ireland was 21.1 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2.2 per 1,000, the rates varying from 0.0 in ten of the districts to 5.2 in Cork and in Armagh. The 38 deaths from all causes registered in Cork comprise 8 from whooping-cough, and the 3 deaths in Armagh comprise 1 from diphtheria. Among the 122 deaths from all causes registered in Belfast are 2 from scarlatina, 1 from

typhus, 1 from whooping-cough, 1 from diphtheria, 3 from simple continued fever, and 2 from enteric fever; and the 19 deaths in Limerick comprise 2 from scarlatina and 1 from typhus.

In the Dublin Registration District the births registered during the week amounted to 123—64 boys and 59 girls; and the deaths to 144—77 males and 67 females.

The deaths represent an annual rate of mortality of 21·3 in every 1,000 of the estimated population. Omitting the deaths (7 in number) of persons admitted into public institutions from localities outside the district, the rate was 20·2 per 1,000.

The number of deaths from zymotic diseases registered is 16, being 7 under the number for the preceding week and 15 below the average for the 52nd week of the ten years 1878–87. They comprise 2 from scarlet fever (scarlatina), 4 from whooping-cough, 5 from enteric fever, 2 from diarrhœa, &c.

Seventeen cases of enteric fever were admitted to hospital during the week, being 10 over the admissions for the preceding week and 4 in excess of the number for the week ended December 15. Eleven patients were discharged during the week, and 64 remained under treatment on Saturday, being 6 over the number in hospital at the close of the preceding week.

Eight cases of scarlatina were admitted to hospital, being 2 over the admissions for each of the three weeks preceding; 29 cases of the disease remained under treatment in hospital on Saturday.

Only 1 case of typhus was admitted to hospital during the week, and only 4 cases of the disease remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered is 35, being 4 under the number for the preceding week, and 29 below the average for the 52nd week of the ten years 1878–87. The 35 deaths comprise 25 from bronchitis and 4 from pneumonia or inflammation of the lungs.

METEOROLOGY.

*Abstract of Observations made in the City of Dublin, Lat. 53° 20' N.
Long. 6° 15' W., for the Month of December, 1888.*

Mean Height of Barometer,	-	-	-	29·848 inches.
Maximal Height of Barometer (on 16th, at 9 a.m.),				30·565 „
Minimal Height of Barometer (on 21st, at 8 p.m.),				28·586 „
Mean Dry-bulb Temperature,	-	-	-	43·3°.
Mean Wet-bulb Temperature,	-	-	-	41·7°.
Mean Dew-point Temperature,	-	-	-	39·8°.
Mean Elastic Force (Tension) of Aqueous Vapour,	-			·252 inch.

Mean Humidity, - - - - -	88.1 per cent.
Highest Temperature in Shade (on 3rd and 5th), -	59.6°.
Lowest Temperature in Shade (on 30th), -	26.4°.
Lowest Temperature on Grass (Radiation) (on 30th),	22.9°
Mean Amount of Cloud, - - - - -	58.4 per cent.
Rainfall (on 17 days), - - - - -	2.911 inches.
Greatest Daily Rainfall (on 19th), - - -	.680 inch.
General Directions of Wind, - - - - -	S., W., S.W.

Remarks.

A mild, changeable month, setting in with a period of warmth, which was remarkable for the time of year, the mean temperature of the first week being as high as 51.8°. Southerly winds (S.E., through S. and S.W. to W.) vastly preponderated. Fogs were prevalent in an anticyclonic period from the 9th to the 18th. A very sharp frost occurred on Sunday, the 30th, the maximal temperature during the day being only 30.7°. There were but three gales. On eight days the sky was overcast—on four it was clear.

In Dublin the mean temperature (43.6°) was—as in November—above the average (41.1°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 43.3°. In the twenty-three years ending with 1887, December was coldest in 1878 (M. T. = 32.8°), and in 1874 (M. T. = 36.8°), and warmest in 1865 (M. T. = 46.2°). In 1886, the M. T. was as low as 37.9°; in the year 1879 (the “cold year”), it was also 37.9°. In 1887 the M. T. was 39.9°.

The mean height of the barometer was 29.848 inches, or 0.034 inch below the average value for December—namely, 29.882 inches. The mercury rose to 30.565 inches at 9 a.m. of the 16th and fell to 28.586 inches at 8 p.m. of the 21st. The observed range of atmospherical pressure was, therefore, 1.979 inches—that is, a little less than two inches. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 43.3°, or 4.1° below the value for November, and 4.9° below that for October, 1888; that calculated by Kaemtz's formula—viz., $\text{min.} + (\text{max.} - \text{min.} \times .41) = \text{Mean Temp.}$ —from the means of the daily maxima and minima was 42.7°, or 2.2° above the average mean temperature for December, calculated in the same way, in the twenty years, 1865–84, inclusive (40.5°). The arithmetical mean of the maximal and minimal readings was 43.6°, compared with a twenty-three years' average of 41.1°. On the 3rd and the 5th the thermometer in the screen rose to 59.6°—wind S.S.W. and S. respectively; on the 30th the temperature fell to 26.4°—wind W. The minimum on the grass was 22.9° on the 30th. The rainfall was 2.911 inches, distributed over 17 days. The average rainfall for December in the twenty-three years, 1865–87, inclusive, was 2.419 inches, and the average number of rainy days

was 17·0. The rainfall, therefore, was decidedly above the average, while the rainy days were equal to it. In 1876 the rainfall in December was very large—7·566 inches on 22 days. In 1872, 4·932 inches fell on as many as 24 days; and in 1868 (which was otherwise a fine and dry year), 4·749 inches fell on as many as 27 days. On the other hand, in 1867, only ·771 of an inch was measured on 13 days; and in 1871, the December rainfall was only ·797 of an inch on 15 days. In 1885, only ·742 of an inch of rain was measured on but 10 days, but in 1886 the rainfall was 3·348 inches, distributed over as many as 21 days. In 1887 ("the dry year"), the rainfall was 1·223 inches on 19 days.

A lunar halo appeared on the 24th, and a solar halo on the 15th. There was a lunar rainbow on the night of the 21st. High winds were noted on 10 days, and attained the force of a gale on three occasions, the 6th, 11th, and 21st. The atmosphere was more or less foggy in Dublin on the 5th, 9th, 10th, 12th, 13th, 14th, 17th, 18th, and 30th. Lightning was seen on the night of the 27th. Hail fell with heavy showers of rain on the 11th. Neither sleet nor snow was observed during the month.

Saturday, the 1st, was a mild fine day.

Singularly mild, but cloudy and rainy, weather prevailed during the greater part of the first week. Saturday, the 8th, only was cool and bright. Until this day an area of high barometer (anticyclone) held over France and Germany, while rather steep gradients for S. and S.W. winds lay across the British Isles and Scandinavia. In southern Germany and central France sharp frosts occurred daily after Sunday the 2nd, but within the region of the southwesterly winds the air was remarkably soft and warm. Atmospheric pressure became equalised over Western Europe on Friday, so that the wind fell light, the sky cleared, and temperature fell fast. In Dublin the mean height of the barometer was 29·862 inches—the highest reading being 30·206 inches at 9 p.m. of Saturday (wind W.), and the lowest 29·484 inches, at 9 a.m. of Monday (wind S.S.W.). The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 51·4°, or 8·8° above the corresponding value for the previous week and 9·7° above that for the week ending October 6, 1888 (41·7°). The arithmetical mean of the highest and lowest daily temperatures was 51·8°. Temperature in the screen rose to 59·6° on Monday (wind S.S.W.), and in the night of the 4th-5th (Tuesday-Wednesday) (wind S.), and fell to 39·0° on Saturday (wind W.). Rain fell on six days—the total precipitation was ·482 inch, and the maximal fall in 24 hours was ·213 inch on Sunday.

Much quieter, colder, and—on the whole—finer weather was experienced in the second week (9th-15th inclusive). Atmospheric pressure ranged high, and the wind was generally light and variable, except in the extreme West of Ireland and of Scotland, where it blew freshly

from S. or S.W. on several occasions. At the beginning of the period, an anticyclone came in from the Atlantic, causing calms and frost on Sunday, with much fog at night. Next day this system moved eastwards to Great Britain, and an irregular depression encroached on the Irish coasts, resulting in cloud and rain with a rise of temperature. For some days an anticyclone held over the Continent, the North Sea, and Great Britain, while depressions skirted the W. of Ireland on their journey northwards. On Friday, a new high pressure system showed over Donegal, afterwards spreading eastwards; so that on Saturday light northerly winds and cool fair weather prevailed. In Dublin the mean height of the barometer was 30·248 inches, pressure varying from 30·047 inches at 9 a.m. of Tuesday (wind S.E.) to 30·542 inches at 9 p.m. of Saturday (wind N.W.). The mean temperature deduced from readings of the dry bulb thermometer, taken daily at 9 a.m. and 9 p.m., was 40·8°; that deduced from the daily maxima and minima was 41·5°. Temperature rose to 49·5° in the screen on Tuesday (wind S.E.); and fell to 28·1° on Monday (wind calm). Rain fell on three days to the amount of ·333 inch, the largest fall in 24 hours being ·193 inch on Monday. Hail fell on Tuesday morning. There were dense fogs on Monday and Friday. A solar halo was seen on Saturday.

At first fine, cool, and quiet, the weather became very wet, mild, and squally in the third week, ending Saturday, the 22nd—an anticyclone giving place to a series of deep depressions, which travelled in a northeasterly direction across Ireland, the Irish Sea, and Great Britain. On Sunday afternoon a light canopy of lofty cirrus cloud reflected the sunlight for nearly an hour after sunset, and subsequently a “glory” and “corona” appeared round the moon. Two quiet, fine days followed; but on Wednesday the weather broke, becoming mild and rainy. In the evening rain fell heavily, in and about Dublin, owing to a cold indraught of air connected with a small subsidiary depression over the Irish Sea. The rainfall at Monkstown, Co. Dublin, was no less than 1·650 inches. In the city, ·680 of an inch was measured, but in the Phoenix Park only ·550 of an inch of rain fell. Thursday was fine, but on Friday a very deep depression advanced from S.W., the barometer falling below 28·50 inches near the centre of the system. Fresh S.E. gales and heavy rains resulted, and at night a distinct lunar rainbow was seen. Saturday was a showery day, the wind backing from S.E. to N.N.E. In Dublin, the mean height of the barometer was 29·627 inches—pressure ranging from 30·565 inches, at 9 a.m. of Sunday (wind W.N.W.), to 28·586 inches at 8 p.m. of Friday (wind S.E.). The mean temperature deduced from readings of the dry bulb thermometer, taken daily at 9 a.m. and 9 p.m., was 43·1°. The highest shade temperature was 55·0° on Wednesday (wind S.); the lowest was 31·2° on Tuesday (wind S.W.) The arithmetical mean of the daily maxima and minima was 43·0°. Rain fell on

four days, the total measurement being 1·591 inches, of which ·680 inch fell on Wednesday, and ·619 inch on Friday.

As regards the fourth week (23rd–29th, inclusive), the weather was at first changeable, and on Christmas Day rain fell heavily in showers, the barometer marking only 29·154 inches at 3 p.m. The last three days were very fine, and the week closed with clear skies and frost. Sunday was dull and damp; at night temperature rose to 50·6°—the highest for the week. Monday was clear and bracing. Tuesday (Christmas Day) was ushered in by a bright “foreglow” at 8 a.m. and a rainbow in the N.W. Drenching showers and squalls from S.W. afterwards occurred. Next day was fine, bright, and cold; the thermometer did not rise above 39·7°. At night a new depression came in suddenly from the Atlantic and the wind freshened from S., with rain (·068 inch). Thursday proved fine in Ireland, but rainy and stormy in England. Faint lightning was seen in the S.E. from Dublin towards evening. Friday was fine, although cloudy at times. Towards evening the sky cleared and frost set in. Saturday was fair and frosty. In Dublin the mean height of the barometer was 29·609 inches—pressure ranging from 29·154 inches at 3 p.m. of Tuesday (wind S.W.) to 30·194 inches at 9 p.m. of Saturday (wind N.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 40·1°, while the arithmetical mean of the highest and lowest daily readings of the thermometer was 40·9°. Temperature rose to 50·6° on Monday (wind S.W.), and fell to 31·3° on Saturday (wind W. to N.W.). Rain fell on three days to the amount of ·476 inch, of which ·398 inch was measured on Tuesday. Lightning was seen on the evening of Thursday, the 27th, and there was a thick hoar frost on Saturday, the 29th.

On Sunday, the 30th, keen frost prevailed—the highest temperature being 30·7°. A vapour fog came on in the afternoon. A thaw ensued on the forenoon of the 31st, and towards evening some rain fell.

The rainfall in Dublin during the year ending December 31st has amounted to 28·679 inches on 190 days, compared with 16·601 inches on 160 days during the same period in 1887, and a twenty-three years’ average of 27·673 inches on 194·4 days.

At Greystones, Co. Wicklow, the rainfall in December, 1888, was 5·66 inches, distributed over 15 days. Of this quantity 1·08 inches fell on the 25th, ·86 of an inch on the 21st, and ·75 of an inch on the 19th. Since January 1, 34·54 inches of rain have fallen at Greystones, on, however, only 138 days.

Abstract of Meteorological Observations taken at Dublin (10 Fitzwilliam-square, West) during the Year 1888.

MONTH	Abs. Max.	Date	Abs. Min.	Date	Mean Daily Max.	Mean Daily Min.	Rainfall	Rainy Days	Mean Height of Barometer	Highest Pressure	Date	Lowest Pressure	Date
January	58.8	9th	25.9	29th	46.3	37.9	1.247	9	30.192	30.686	18th	29.183	2nd
February	51.4	3rd	24.8	14th	42.3	34.8	1.097	14	30.119	30.568	28th	29.461	11th
March	58.6	8th	26.9	17th	45.0	34.6	3.753	18	29.646	30.481	21st	28.556	28th
April	60.6	14th	28.8	9th	51.0	40.4	1.993	17	29.920	30.350	6th & 26th	29.137	30th
May	68.7	7th	36.9	4th	59.6	45.3	.978	11	30.000	30.519	11th & 23rd	28.980	1st
June	72.4	26th	43.2	14th	61.9	50.4	3.045	18	29.935	30.300	18th	29.443	12th
July	68.7	21st	42.9	11th	62.7	51.9	3.881	22	29.747	30.178	12th	29.200	2nd
August	71.4	7th	42.0	18th	64.3	52.0	1.270	12	29.957	30.350	31st	29.389	23rd
September	65.5	5th	39.2	30th	60.1	43.7	.728	10	30.179	30.516	8th	29.783	29th
October	66.6	27th	32.9	2nd	54.8	43.4	1.227	16	30.030	30.417	21st	29.230	2nd
November	59.5	16th	30.8	28th	51.2	43.8	6.549	26	29.690	30.168	21st	29.075	27th
December	59.6	3rd & 5th	26.4	30th	48.2	38.9	2.911	17	29.848	30.565	16th	28.586	21st
Extremes, Totals, and Means	72.4	June 26th	24.8	Feb. 14th	54.0	43.5	28.679	190	29.939	30.686	Jan. 13th	28.556	March 28th
					48.7°								

January 1, 1889.

RAINFALL IN 1888,

*At 40 Fitzwilliam-square, West, Dublin.**Rain Gauge:—Diameter of funnel, 8 in. Height of top—Above ground, 3 ft. 2 in. ; above sea level, 57 ft.*

Month	Total Depth	Greatest Fall in 24 Hours		Number of Days on which $\cdot 01$ or more fell
	Inches	Depth	Date	
January, - - -	1·247	·850	3rd	9
February, - - -	1·097	·273	25th	14
March, - - -	3·753	1·012	11th	18
April, - - -	1·993	·343	30th	17
May, - - -	·978	·251	29th	11
June, - - -	3·045	·951	27th	18
July, - - -	3·881	·509	27th	22
August, - - -	1·270	·231	21st	12
September, - - -	·728	·232	6th	10
October, - - -	1·227	·331	27th	16
November, - - -	6·549	1·519	28th	26
December, - - -	2·911	·680	19th	17
Total, - - -	28·679	—	—	190

The rainfall was almost exactly one inch in excess of the average annual measurement of the twenty-three years, 1865–87, inclusive—viz., 27·673 inches.

It will be remembered that the rainfall in 1887 was very exceptionally small—16·601 inches, the only approach to this measurement in Dublin being in 1870, when only 20·859 inches fell, and in 1884, when the measurement was 20·467 inches. In seven of the twenty-three years in question the rainfall was less than 26 inches, and in 1885 it was 26·614 inches.

The scanty rainfall in 1887 was in marked contrast to the abundant downpour in 1886, when 32·966 inches—or as nearly as possible double the fall of 1887—fell on 220 days. Only twice since these records commenced has the rainfall in Dublin exceeded that of 1886—namely, in 1872, when 35·566 inches fell on 238 days, and in 1880, when 34·512 inches were measured on, however, only 188 days.

In 1888 there were 190 rainy days, or days upon which not less than $\cdot 01$ inch of rain (one hundredth of an inch) was measured. This was slightly in defect of the average number of rainy days, which was 194·4 in the twenty-three years, 1865–87, inclusive. In 1868—the warm dry year of recent times—as well as in 1887, the rainy days were only 160, and in 1870 they were only 145. In 1868, however, the rainfall amounted to 24·935 inches, or more than 8 inches above the measurement in 1887, and even in 1870, 20·859 inches were recorded. Included in the 190 rainy days in 1888 are 28 on which snow or sleet fell, and 39 on which

there was hail. In February hail was observed on 9 days, in March on 11 days, and in April on 5 days. Snow or sleet fell on 3 days in January, on 11 days in February, on 10 days in March, and on 2 days in both April and November. Thunder and lightning occurred on nine occasions during the year—once in May, thrice in June, twice in July, once in August, and twice in November.

The rainfall was distributed as follows :—6·097 inches fell on 41 days in the first quarter, 6·016 inches on 46 days in the second, 5·879 inches on 44 days in the third, and 10·687 inches on 59 days in the fourth and last quarter.

Of the 10·687 inches which fell on the last quarter of the year, 6·549 inches were measured in November.

J. W. MOORE, B.A., M.D., Univ. Dubl ; F. R. Met. Soc.

PERISCOPE.

DURATION OF INCUBATION AND CONTAGIOUSNESS.

TEN years ago the Clinical Society of London appointed a committee to investigate the periods of incubation and of contagiousness of the commoner communicable diseases. A certain amount of valuable material was received, but it was thought desirable to defer the presentation of a report until further experience was available. The Society has now determined to gather additional information with a view to the preparation of an early report on the subject, and for this purpose has reconstituted the committee. The committee is desirous of obtaining particulars of cases which throw light upon the periods of incubation and contagiousness of the below-mentioned diseases, and will be grateful for notes of any cases where the facts can be ascertained with sufficient precision to afford grounds for conclusions. It is thought that gentlemen practising at a distance from large centres of population, and especially those engaged in the Public Health Service, or associated with schools, would be able to supply information of the kind required. A single case in which the dates of exposure to infection and the appearance of the first symptom can be accurately fixed, especially where the exposure has been limited in duration, would be highly valued. The following diseases are included within the scope of the inquiry :—Variola, varicella, measles, German measles, scarlet fever, typhus, relapsing fever, whooping-cough, diphtheria, enteric fever, cholera, erysipelas, mumps, infectious sore throat. The committee consists of Dr. W. H. Broadbent, Dr. George Buchanan, Dr. Cayley, Dr. Thomas Barlow, Dr. Alfred Hill, Dr. Isambard Owen, Dr. Thorne Thorne, Dr. Alder Smith, and Mr. R. W. Parker with Mr. Shirley Murphy, 41 Queen Anne-street, and Dr. Dawson

Williams, 25 Old Burlington-street, W., as honorary secretaries, to one of whom communications should be addressed. An early reply would facilitate the work of the committee.

RUPTURE OF THE RECTUM.

AT a meeting of the Société de Chirurgie, M. Nicaise related a case of rupture of the posterior wall of the rectum by a Petersen's balloon, which was inserted to press the bladder of a man sixty-five years of age, upward and forward to facilitate a supra-pubic lithotomy.—*Gazette Hebdomadaire de Médecine et de Chirurgie*, No. 41, Tome XXV.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Vaporoles.

MESSRS. BURROUGHS, WELLCOME & Co. have sent us specimens of some of their new preparations, to which they have given the name, "Vaporoles." These consist of friable glass capsules, containing the usual drugs employed for inhalation and fumigation, the capsules being ensheathed in concentric layers of Lawton's Absorbent Cotton, and the whole enclosed in a beautiful silken sac. When a "Vaporole" is required for use, it is only necessary to strike it smartly with anything hard, to liberate the enclosed liquid. Sufficient absorbent material is employed in the sheath of the capsule to retain the liquid.

For inhalation, the crushed "Vaporole" can be dropped into the water bottle of the "Vereker" Chloride of Ammonium Inhaler, or into a steam atomiser. For fumigation, the crushed "Vaporole" may be placed on a hot plate until the fumes have thoroughly impregnated the atmosphere of the room; or in the case of Pinol, a crushed "Vaporole" may be pinned to a curtain until it has disseminated its piny fragrance throughout the room.

The following is a list of the preparations already in the market under the name of "Vaporole":—1. Vaporole Carbolic Acid, 20 minims; 2. Vaporole Amyl Nitrite, 5 minims; 3. Vaporole Ether, 30 minims; 4. Vaporole Tinct. Benzoin Co., 30 minims; 5. Vaporole Chloroform, 30 minims; 6. Vaporole Creasote, 10 minims; 7. Vaporole Cubebs and Lemon, 5 minims; 8. Vaporole Iodine Tinct., 10 minims; 9. Vaporole Juniper, 2½ minims; 10. Vaporole Terebene, 10 minims; 11. Vaporole Pinol, 10 minims; 12. Vaporole Eucalyptus, 10 minims.

These preparations are put up in boxes, each containing 12 "Vaporoles," to retail at 2s. 6d. per box.

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OF

MEDICAL SCIENCE.

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NOTICES TO CORRESPONDENTS.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. IX.—*Isolation in Infectious Fevers.** By S. M. MAC-SWINEY, M.D., M.R.I.A. ; Fellow, King and Queen's College of Physicians, Ireland ; Fellow and Examiner in Medicine, Royal University of Ireland ; Fellow, Royal Academy of Medicine, Ireland ; Professor of Forensic Medicine, Catholic University of Ireland ; Physician to Jervis-street Hospital ; President of the Section of State Medicine, Royal Academy of Medicine.

It would not be easy to exaggerate the importance to the community of the science of "State Medicine"—that science to the discussion of some questions arising out of whose several branches we are about to address ourselves at the meetings during the present Session of this Section of the Royal Academy of Medicine of Ireland. Public Hygiene is one of the departments of State Medicine. Under the designation of "Public Health," is comprehended the study of the physical condition of communities, and of the influences—favourable and unfavourable—which operate upon them from their surroundings. The main object of public hygiene is the prevention of ill-health, where such is possible, by the discovery of its causes, and by the inculcation and enforcing of all such hygienic rules and precautions as have been found efficacious for the stamping out, or the control of disease. A large number of maladies, and many states of impaired or deteriorated health, are now known to be preventable, chief amongst them being those

* Read before the Section of State Medicine of the Royal Academy of Medicine in Ireland, on Friday, February 8, 1889. [For the discussion on this paper see page 259.]

included in that group which contains the infectious, or the so-called zymotic, diseases. The ravages occasionally committed by widespread epidemics of the infectious exanthemata have been so great that the attention of the advocates of preventive medicine has been keenly directed to the discovery of means of controlling, and, if possible, eradicating these scourges of man. And regarding them—as they are now universally regarded—as due to certain contagious particles, the inquiry at once and naturally arises, “What is the intimate nature of these contagia?” I suppose the view almost universally prevalent at the present time concerning the ætiology of this class of diseases is that they owe their existence to certain micro-organisms—organised bodies of a vegetable nature, endowed with an independent life. According to this view, infection implies the reception into the living body, from without, of some morbid agent, endowed with the power of self-propagation in the organism of the recipient. And furthermore, that these infectious germs, or morbid agents, have been contributed, directly or indirectly, by persons who themselves have been suffering from the particular disease which has been thus communicated. Some authorities, perhaps, would still dispute the correctness of the “germ theory” of disease, basing their objections to it upon—amongst other grounds—the fact of the undoubted and marked difference in susceptibility which exists in different persons in respect of these morbid poisons. Without stopping now to discuss this opinion, held by a small minority, I shall maintain that, according to our present knowledge, contagia must be regarded as living organisms, of exceedingly minute but varying size; and I shall assume that micro-organisms cause some, if not all, of the infectious diseases; that they—in a state of vital activity—possess a very remarkable power of multiplication by division—a power called forth upon their entry into the human body. Accepting this view, it necessarily follows that the duty of physicians and all concerned in preserving the public and general health is to take as effectual steps as possible to prevent the communication of such morbid poisons, by those affected by them, to others, who are, as yet, free from the disease which they are known to possess the property of communicating. For the purpose of accomplishing this object—the prevention, that is, of the spread of infectious disease—a well-considered system of sanitary precautions and proceedings has been gradually elaborated, and has now reached a stage of completion which, if not perfect, is, at the least, well calculated to accomplish,

when fully carried out, the more important of the ends desired by the sanitarian. Amongst the various proceedings whose aggregate constitutes the system or code of preventive hygiene, three procedures are of paramount importance—namely (a) the prompt notification of the existence of the disease in the particular instance; (b) the destruction of its specific infective poison by a true disinfectant; and (c) the insisting upon the strict observance of “isolation,” which, when fully enforced, will, as most of us believe, effectually prevent the spread of epidemic disease by infection.

I have selected the subject of “Isolation in the Exanthemata” for particular notice on this occasion, as, although, commonly, a well-understood and trite enough subject amongst the general body of the profession now, it is, yet, one which still requires special consideration in view of some objections which are occasionally urged against its indiscriminate adoption.

Patients, the subjects of general disease, who are too poor to afford the expense of treatment in their own homes, are usually admitted into hospital. As disease will spread from one part of a hospital where there is the simultaneous treatment of general, non-contagious disease, and cases of the different sorts of infectious fever, to the other, it soon became evident that, if the views of the nature of contagion already mentioned are to be accepted and acted on, special isolation hospitals, on the pavilion or some other system, for cases of infectious diseases should be provided where this measure of treatment could be fully carried out. Many such hospitals are now to be found in different parts of the kingdom, to which patients suffering from contagious diseases are conveyed in considerable numbers, with, it is believed, much benefit to the health and well-being of the community. The main object contemplated by the advocates of such special hospitals is to limit the spread of infectious disease by the enforcing of strict isolation.

Now, it is to the adoption of this plan of treatment of such maladies that certain objections have been urged, and the question of the advisability of isolating persons suffering from the contagious exanthemata has been raised by some authorities, who doubt, or dispute the propriety of this proceeding, in whole or in part, in, at least, some instances. I shall therefore now, in the first place, enumerate several of the statements made, and some of the arguments employed in support of this opposition to isolation, and I shall, finally, adduce certain statistical facts which are entirely

subversive of some of the more serious contentions of the anti-isolationists.

I. Taking scarlatina as a type of a disease usually regarded as being pre-eminently suitable for this plan, opponents of isolation would begin by assuming that the ultimate object contemplated by advocates of such treatment was the total and permanent destruction of the malady—its removal, in fact, from the face of the earth; and they would, at once, join issue here, and deny the possibility of accomplishing this very desirable end. They would justify the position of antagonism assumed by them, by urging that whatever isolation may possibly do for other diseases, it was not to be expected that the *materies morbi* in the case of scarlatina could be exterminated by any system of isolation, contending that, from the circumstances of the case, the attempt to stamp it out would be quite impracticable, and likely to do more harm than good.

II. They would urge that isolation, strictly carried out, results—slowly but surely—in the increase, amongst the population, of the number of persons unprotected by a previous attack of the disease. That from this it would follow that there would be a yearly increasing number of persons—mainly adults—who would be unprotected, and consequently liable to be attacked, and to, perhaps, fall victims to any epidemic influence which may prevail. And that such epidemics, as a result of isolation which would cause the existence of this increased number of persons who would not be protected by a previous attack, would be found to prevail more frequently, maintaining that when the barrier of isolation once broke down, and that an epidemic did arise, there would be great danger of its becoming more extensive and virulent. So that, according to them, isolation would merely mean postponement to a more unfavourable season.

III. That it may be expected that the mortality during such an epidemic would be very great, giving, as an instance in point, the case of the epidemic of measles which worked such havoc amongst the Fiji Islanders some years ago, when the disease arose in virgin soil. And that this mortality would probably be largely amongst adults, who would constitute the greater number of the unprotected. Moreover, that other considerations besides rate of mortality have to be taken into account when regarding the case of adults attacked by infectious diseases, such as those necessary conditions of good general health, social obligations, and business

requirements which appertain to the adult, and are so seriously disturbed and interfered with by the advent of sickness, showing, in this way, that sickness, though unattended by a fatal result, was a more serious affair for adults than for the young.

IV. They would call attention to the fact that the type of infectious diseases is found to vary much in different epidemics—being now of great malignity, again extremely mild. That the rule—although undoubted exceptions must be admitted to exist—was “that they breed true,” so that a mild attack would communicate a similar mild attack to others who are susceptible. Such mild attack would be followed by a low “death-rate”—a low death-rate from scarlatina would mean the addition of a certain number of persons to the general body of the protected survivors. But that isolation, if successful, would prevent this protection, and thus, in an appreciable degree, would supply increased facilities for future epidemics; so that if, by enforcing isolation in an instance where there is a likelihood of a child taking a mild attack of scarlatina, you prevent this, you are only deferring the attack to a future time under, possibly, far less favourable circumstances to the patient.

V. Again, the question is asked, “How is isolation to be carried out?” Whether in the home, or in an infectious-disease hospital? If at home, and that the unprotected children, or others, are removed to some other place, they are likely to be carriers of disease thereto, and thus spread the infection. Whilst complete isolation can, no doubt, be secured in even moderate-sized private houses, it cannot be carried out in the rooms of the poorer classes. Here removal to hospital becomes necessary. But hospitals for the reception of cases of infectious disease may themselves, it is argued, become centres of infection. And other objections to the removal of such cases to hospital have been made—viz., that it should be done at the earliest moment, as it is dangerous to remove a patient after the first or second day of the disease, whilst before this time it may not be easy—or it may not be possible—to make the diagnosis; so that a practitioner may find himself in the unpleasant position of having sent a patient—not suffering from scarlatina—into an infectious fever hospital, with possibly very undesirable consequences to the patient or to himself. And that whilst removal to such hospital only concerns the affected person, the place whence the patient was taken may not have had any attention bestowed upon it, in the direction of sanitation, with

probable results which are self-evident. Moreover, that a hospital where children attacked with infectious diseases shall be treated, cannot be easily availed of for the care of such little patients.

Now, in connection with this very question of the removal of children to hospital, Dr. Tidy, in a late report on the sanitary condition of the parish of St. Mary, Islington, made the following remarks:—"I must say that I strongly deprecate the forced removal of very young children to hospital when suffering from such a disease as scarlet fever, nor do I think this course either wise or expedient, for if we live long enough we shall all sooner or later, with few exceptions, be sure to have it, and perhaps at an age when it will be less convenient and more dangerous to suffer from it, and it may therefore be safely asserted that the rigid practice of isolation and of removal to hospital may be carried too far."

And Dr. Gairdner used these very remarkable words, when Medical Officer of Health for Glasgow:—"As a general rule, the habits and traditions of the family life, even in the most poverty-stricken and degraded classes, oppose an insuperable barrier to the removal of very young children; nor, even if the consent of parents could be obtained, are the means of treatment in hospitals adapted to such cases. It is, therefore, with a feeling of complete helplessness that the sanitary officer sees such diseases as measles, whooping-cough, and scarlet-fever running riot in the houses of the poor; he feels that in most instances nothing can be done beyond a general instruction to open the windows, and attend, if possible, to cleanliness. In some instances he is paralysed in the face of greater emergencies; he has no power to enforce removal, even should an infected family settle in a crowded neighbourhood hitherto free from disease; he cannot disperse a school in which cases of infection have occurred, and any attempt even to give publicity would only result in their more careful concealment. Even, as has repeatedly happened within our observation, provisions are publicly sold from infected apartments. In one instance a woman with the eruption of smallpox actually on her hands was found selling sweetmeats to the children of a school in her neighbourhood. In this instance a threat, partly of exposure and partly of legal consequences, put an end to the scandal; but legal remedies can have a very limited application, and self-interest will often be much too strong for all suggestions proceeding merely on public grounds. In truth, the spread of epidemic disease among children can hardly

be met otherwise than by the gradual diffusion of enlightenment, and by the improved habits which may arise from the remodelling of the dwellings of the poor over a long course of years."

Dr. Hilton Fagge ("Principles and Practice of Medicine"), after an inquiry into the physiological action of the microzymes of contagious diseases, and the duration of the immunity conferred by having once undergone an attack, says (Vol. I., pp. 29-30):—"These considerations seem to me to render very doubtful the advisability of attempting, even if it were practicable, to eradicate infectious diseases from this or any other country, and then to keep them off by a system of quarantine. Sir Thomas Watson gave to such a scheme the weight of his authority. But, sooner or later, each disease would be sure to find an entrance, and it would probably commit unheard-of ravages. I doubt whether it is even right to teach the public to look upon the maladies in question as, in a special sense, preventable." "The true method of combating infection seems to be that of which we have an illustration in the practice of vaccination." "One could not render a greater service to humanity than by discovering how to transmit the contagion of scarlet fever through any of the lower animals in such a way that, when reintroduced into the human subject, it should convey protection without risk. I am not even sure whether it might not be well to expose children on purpose to infection from this disease, when it happens to be epidemic in a mild form."

I shall not give this Address undue proportions, by adding to it any further statements similar in tone to those which I have already brought forward. I will merely observe that I regard the several remarks which I have now adduced as constituting a very formidable array of opinion adverse to isolation, and I beg leave to submit them to the members of the Section for discussion and review. I think it will not be denied that, in the interest of the department of "Public Health," an exhaustive examination of these pronouncements is called for, whereby the contentions therein advanced may be proved to be sustainable in whole or in part, or their fallacy or unsoundness be conclusively established.

It is not my purpose on this occasion to enter upon a detailed criticism of this heavy indictment of isolation, but I shall briefly bring forward some observations which clearly show that some portions, at least, of these allegations do not rest upon solid ground.

As I have shown, it has been urged that the more isolation is

carried out the greater will be the number of adults who are unprotected, who are liable to be attacked, and who may succumb to an epidemic more dangerous to them as adults. But these statements are not supported upon appeal to statistics, as the following facts will make evident:—

Dr. Sweeting (*B. M. J.*, Nov. 12, 1888) gives the following information in disproof of these assertions:—In the Western Fever Hospital, from January to November, 1887, there were 903 cases of scarlet fever admitted. Of these only 70 (less than 8 per cent.) were over 20 years of age. And again, in the four years (1882–86) 1,101 patients suffering from the same disease were admitted into the same hospital, of whom 104 (little over 9 per cent.) were adults. And as to mortality—in the above-stated two periods, of the total mortality of 156, there were but three adults; whilst 92 per cent. of the deaths were under 10 years of age.

Again, it has been stated that the exanthemata run a severer course in adults than in children. This may be true as far as some of the exanthemata are concerned (typhus, for example); but as regards the whole class, observed facts do not support the statement—indeed the contrary would appear to be the rule. Thus, Dr. John Tatham, Medical Officer of Health for Salford, gives the statistics of the mortality in 2,500 cases of scarlatina, carefully formulated:—“Of 259 cases occurring within the first two years of life, 26 per cent. died. Of 881 cases aged from two years to five, the fatality was 14 per cent. In the next quinquennium it was 7·5; whilst among the cases occurring at all ages above 10 years, the fatality did not exceed 3·7 per cent. And moreover, general experience would tend to show that perilous complications, not ending fatally, are more frequent in children attacked with scarlatina than in adults.”

Numerous observers bear similar witness. Thus:—“During the 30 years—1851–80—the mortality from scarlet fever at all ages in England and Wales averaged 855 per 1,000,000 of the population. In infants under five, the mortality was 4·101 of those living at that age; while in children between five and ten it was only 1·896 per 1,000,000 of the same age. Again, in the three London fever hospitals, of which the cases and deaths are given by Dr. Collie for the 10 years—1871–80—the percentage of deaths to cases was 26 in those under 5; 13 in those between 5 and 10; 7 in those from 10 to 15; and less than 4½ in those between 15 and 20.”—(*J. S. Cameron—Brit. Med. Jour.*, Dec. 3, 1887.)

And writing as to the influence of age in relation to scarlet fever, Thomas (Von Ziemssen's *Cyclopædia*) makes the following remarks:—"Age has a most decided influence on the individual predisposition. While this is very limited in the youngest children, it undoubtedly increases during the 2nd six months; is strongest from the 2nd to the 5th or 7th year, and rapidly diminishes after the 10th year; so that adults have only a slight predisposition."

At a meeting of the Epidemiological Society of London, Dr. Whitelegge read a paper, in which he said—that a detailed analysis of upwards of 6,000 notified cases showed that the liability to scarlet fever was slight in infancy, reached its maximum in the fourth or fifth year, and diminished every year afterwards. The severity of attack, however, was reached in the first two years of age, and lessened year by year throughout childhood and adolescence. In adult life there was, apparently, a slight increase again, the reality of which was open to doubt. The scarlet fever death-rate reached its maximum in the third year of life in both sexes—42 per cent. of the cases and 65 per cent. of the deaths occurred in the first five years of life, 40 and 26 per cent. respectively in the second quinquennium, and 11½ and 5 per cent. in the 3rd. The advantage of postponing an attack was twofold, each year of age beyond the fifth diminished the susceptibility to attack, and each year of postponement lessened the average severity of attack, if it should occur; probably about two-thirds of the adult population had escaped attack altogether.

Although it is very easy for the unskilful to draw false conclusions from statistics, I think that an examination of the tables I have supplied would tend to prove that the postponing of an attack of scarlatina, instead of increasing, would largely diminish the gross mortality from the malady.

This brings to an end, gentlemen, the words which I have desired to address to you. I have adverted to one of the many questions with which "State Medicine" concerns itself. Every effort, however feeble, to advance the beneficent work of preserving the national health is of avail, and will count; and I am confident that the members of this Section who, in a special manner, devote themselves to studying the problems of public hygiene, will contribute some of the results of their labours in papers, to be read before us here. In an address on "The National Value of Public Health," delivered by Sir James Paget, he says, in reply to the

question, "What more is wanted?"—"A larger and more practical recognition of the value and happiness of good national health, a wider study and practice of all the methods of promoting it, or, at least, a more ready and liberal help to those who are striving to promote it."

ART. X.—*On Amputation of the Cervix Uteri in the Treatment of Uterine Cancer and Cervical Injuries.** By THOMAS MORE MADDEN, M.D., F.R.C.S.E.; President, Obstetric Section. British Medical Association; Obstetric Physician, Mater Misericordiae Hospital, Dublin; Consultant, National Lying-in Hospital; Physician, St. Joseph's Hospital for Sick Children.

AMPUTATION of the cervix uteri appears to me one of the few gynæcological operations which is still less frequently resorted to than might be justified by the advantages derivable from its performance in those cases in which its employment is indicated, and in some of which far graver and not more successful operations are too often performed.

In the following observations I shall discuss briefly, from the standpoint of my own clinical experience as well as from the literature of the subject, the expediency of the timely removal of the cervix uteri in cases of threatened or early existing malignant disease. Secondly, I desire to again urge the utility of this operation as a substitute for cervical trachelorrhaphy in some of those cases of laceration and its consequences, for which the latter operation is generally adopted. These two subjects are, to a large extent, so closely connected that they may be properly considered together in this communication.

Frequency of Cancer of Cervix.—Cancer of the uterus is not only the most formidable, but is also unfortunately amongst the most frequent of all the special diseases to which women are subject. Thus, according to statistics with regard to the comparative frequency of uterine cancer cited by Dr. Duncan, of 26,200 women examined by Professor Schroeder, 812, or 3 per cent., had cancer of the uterus; in 236 of these the portio vaginalis was attacked, in 181 the mucous membrane of the cervical canal, in 28 the body of the uterus, and in 367 the place of origin was undetermined. The time of life most subject to the disease is period subse-

* Read before the Section of Obstetrics in the Royal Academy of Medicine in Ireland, Friday, February 1, 1889. [For the discussion on this paper see page 256]

quent to the menopause. To this rule, however, many exceptions are found—one of the most remarkable instances of this kind that I have met with being the case of a girl only sixteen years of age, who died on the day after her admission to my ward from exhaustion, consequent on a large encephaloid cancerous mass, growing from the cervix, and completely occupying the upper third of the vagina.

Cancer of Uterus generally originates in the Cervix.—The chief points I desire to submit for discussion on this subject are—firstly, that cancer of the uterus, in the great majority of cases, originates as a local disease in the cervix, and if there recognised in time, and treated by immediate infra-vaginal amputation of the cervix, it may possibly be arrested. Secondly, that if not thus checked, the subsequent extirpation of the entire cancerous uterus, as advocated by some authorities, is an operation which, if not worse than useless, can seldom be resorted to with any great probability of ultimate success. And, thirdly, that in cases in which, as will be shown, there is a likelihood of cancer becoming subsequently developed in cicatricial tissue resulting from parturient lacerations, the cervix should be unhesitatingly removed as the only effectual preventive measure for a disease for which, when established, there exists no reliable curative treatment.

Within the past twelve years a considerable number of cases of uterine cancer, chiefly epithelioma, have come under my observation in the gynaecological department of the Mater Misericordiae Hospital, and in the great majority of these the disease primarily manifested itself in the cervix, whence, if unchecked, it gradually extended upwards into the body of the uterus. During this time I have, however, also met with some cases in which the uterus was disorganised by epithelioma of the endometrium, or by extensive cancerous infiltration into the submucous structure, or occupied by sarcomatous or other malignant growths, long before any cervical disease was apparent, as well as with cases of uterine cancer, in which, whilst the cervix remained unaffected, the fundus and body of the organ were disorganised by extension of malignant disease, probably ovarian or tubal in origin.

Dr. Emmet has clearly shown that cancer of the uterus frequently commences within the cicatricial tissues, resulting from neglected parturient lacerations of the cervix. Mr. Jonathan Hutchinson points out that in many cases the first stage of cancer is that of inflammation; that “all inflammations are infective, and

inflammatory processes may pass by almost imperceptible gradation into malignancy." "In more than three hundred cases of cancer of the cervix, of which I have notes," observes Dr. Reamy, of Philadelphia, "but one occurred in a virgin, and but ten in married women, in whose cases I could obtain no evidence of abortion or child-bearing. Can anyone deny that such facts point strongly to the local origin of cancer in these cases at least? And can it be doubted that injuries inflicted upon the cervix during parturition have a direct or remote connection with this origin? Would it not be wise to repair these injuries, when they are appreciable, by whatever method it may be done most speedily and certainly." Many years earlier a somewhat similar observation was made by my distinguished teacher, the late Professor Montgomery, in a paper of his on the "Incipient Stages of Cancer of the Womb," in which he clearly pointed out that, as a general rule, the first discoverable morbid change, which is the forerunner of cancerous affections of the uterus, takes place in and around the muciparous glandulæ or vesicles, sometimes called ova Nabothi, which exist in such numbers in the cervix and margin of the os uteri; these become indurated by the deposition of scirrhous matter around them, and by the thickening of their coats. Rokitansky also long ago remarked that cancer of the uterus generally limits itself to the vaginal portion and cervix in a defined and sharp manner. And he further remarks:—"The primitive seat of cancer is always the cervix uteri, and first of all the vaginal portion. The primary appearance of cancer in the fundus uteri is limited to such extremely rare cases, that what we have just said remains a fixed rule."

In relation to the same question we must, moreover, as the late Sir James Simpson well said, bear in mind the natural history of carcinoma uteri; and in illustration of this he quotes Dr. Walshe's observation:—"Uterine cancer is commonly primary," and possessed of comparatively slight tendency to contaminate the system generally. In two important respects, therefore, uterine carcinoma presents conditions favourable for surgical interference; still, however, in order that a case may offer any chance of success, several conditions seem requisite:—

1. The disease must be in an early stage.
2. The morbid structure must be strictly limited to the lips or cervix, or, at all events, be distinctly situated below the line of reflection of the vagina upon the cervix uteri.

The above combination of circumstances is seldom met with because

the medical attendant is rarely consulted until the disease has passed the limits in question. Nevertheless, of eight cases referred to in Simpson's monograph on this subject here cited, in which he thus amputated the cervix, seven recovered perfectly. The same view is supported by more modern authorities, and as Hart and Barbour point out, we may, in accordance with the researches of Klebs, Waldeyer, Virchow, and others, trace the origin of all these malignant growths either to the cervical epithelium of the cervical glands, the deepest layers of squamous epithelium on the vaginal aspect of the cervix, the connective-tissue cells of the cervix, or the epithelium of the cervical canal.

Symptoms of Uterine Cancer.—The constitutional symptoms of uterine cancer in its later stages need not be here enlarged upon, being general emaciation, sharp, pinched, anxious facial expression, yellow, semi-jaundiced discoloration of the whole surface, and the well-marked hectic and other unmistakable evidences of the cancerous cachexia, when once the disease is fully established. Nor, in this connection, is it necessary to dwell on the evidences revealed under the same circumstances by local examination when carcinoma had extended beyond the cervical zone, and when the characteristic pain, hæmorrhage, and discharge, as well as the symptoms caused by the pressure of the enlarged, misplaced, or adherent cancerous uterus, or consequent on the extension of the disease to adjacent parts, leave no room either for doubt as to the diagnosis, or for hope as to the prognosis of the case.

The early symptoms of malignant disease of the cervix uteri, and the incipient progress thereof, are so obscure and ill-marked in their apparent consequences, and the frequency of the disease is such, that it behoves us to examine most carefully, not only in every supervening, but also in every possible case, for any of those symptoms of its existence which, however unreliable and obscure *per se*, yet in their aggregate may afford the careful observer sufficient grounds on which to base his diagnosis in such cases.

In like manner, once the cervical disease has attained the ulcerative stage, there can be no question as to its detection, though then commonly but too late, when, on digital examination, the cervix is found lower than normal, the uterus being bound down in the pelvic cavity by adhesions to the surrounding tissues, the os open, its lips, if not already destroyed, tumefied, or else perhaps presenting the stony hardness characteristic of the scirrhus form of disease. The cervical structure is then more or less deeply

excavated by the subsequent ulceration; occasionally the entire os and cervix being thus eaten away, so as to lay the uterine and vaginal cavities into one, before any suspicion of the nature of the case has called for examination. By the speculum the characteristic found—irregular, thickly corroded ulcer, covered with a gray viscid putrilage—now comes into view, whilst if any possible doubt could then exist, this would be cleared up by the presence of the peculiarly fœtid ichorous or watery discharge attendant on open cervical cancer.

Without dwelling further on these symptoms, what I would rather desire to impress here is the possibility of recognising the earliest incipient stage of cervical cancer long before any pain, hæmorrhage, or characteristic discharge is observable, on careful examination of the cervix, by evidences which were well described by the late Dr. Montgomery, but which are generally passed over without sufficient notice by later writers, as well as by microscopic examination. On careful exploration at an early period in such cases, as Dr. Montgomery pointed out, the margin of the os uteri is found hard, and often slightly fissured, and projects more than is usual, or than is natural, into the vagina, and is irregular in its form. In the situation of the muciparous glands, there are felt several small, hard, and distinctly defined projections, almost like grains of shot or gravel, under the mucous membrane. Pressure on these with the point of the finger gives pain, and the patient often complains that it makes her stomach feel sick. The cervix is, in most instances, slightly enlarged, and harder than it ought to be. The circumference of the os uteri, especially between the projecting glandulæ, feels turgid, and to the eye presents a deep crimson colour, while the projecting points have sometimes a bluish hue.

In these cases, according to Professor Schuata, of Prag, it is possible to make an early diagnosis only by regarding every case of catarrh and erosion with suspicion, and by examining them very carefully as to whether we can discover somewhere a small nodule which must be regarded as cancerous. The age of the patient, hæmorrhages, and inspection of the vaginal portion will teach us that such erosion will show some suspicious points. Such points have the following peculiarities:—On the surface of the erosion we find a small nodule projecting which is dark red or yellowish red, bleeding very easily. These nodules seem, at first, quite innocent; nevertheless when excised they present, under the microscope, all the characteristic signs of cancer of the uterus.

The future of this disease will be better if we operate early. This, however, depends on our early diagnosis. In every case, continues Schuata, will the excision of a suspicious nodule be necessary. This is quite a harmless and painless procedure.

Under these circumstances the diagnostic utility of the curette, as recently here well shown by Dr. Smyly, becomes unquestionable; and for this purpose its cautious employment, so as to bring away a sufficient amount of the abnormal tissue for microscopic examination, should immediately be resorted to in every case of suspected or possible adenomatous or cancerous degeneration.

Expediency of Early Amputation of a Cancerous Cervix, and its Results.—The question of the expediency of operative interference in these cases, by removal of the cancerous cervix, must be determined on similar principles to those recognised in all other forms of malignant disease. Thus, for instance, no surgeon would, I think, be justified in amputating the cervix in cases where the cancerous cachexia was well established and obvious in the general aspect of the patient, or where the disease was either developing with unusual force and rapidity, or else had extended beyond the cervical zone, so as to render it impossible to thus remove completely the implicated part.

In a large number of instances, however, the disease, if sufficiently early recognised, may, I believe, be completely and permanently arrested by the infra-vaginal amputation of the cervix by the *écraseur* and the free canterisation of the stump, without any necessity for resorting either to Schroeder's more complicated flap operation or to the supra-vaginal method of accomplishing the amputation of the uterine neck adopted by the same distinguished authority, the results of which are not, I think, such as should lightly lead us to induce our patients to submit to its inevitable risks, as in 13 out of 19 cases the disease recurred within four and a half months of its performance, whilst the mortality was 4 in 37.

At a meeting of the Obstetrical Society of Berlin, held October 23, 1886, Hofmeier reported the number and results of Schroeder's partial amputation of the uterus for cancer, and the results of total extirpation by the same operator. The report included all of the cases which had been operated upon from October 1, 1878, to October 1, 1885. During that period there were 118 partial amputations, with 10 deaths—mortality, 8·5 per cent.; and 48 total extirpations, with 12 deaths—mortality, 25 per cent.

In 1882 Pawlik published a report of 136 cases of cancer of the cervix which had been treated in the first gynæcological clinic of Vienna by means of the galvano-cautery, the observations extending back to 1861. The mortality from the operation, although not exactly stated, must have been exceedingly small—apparently not over 3 or 4 per cent. By amputation with the hot iron, Schroeder, out of 13 cases, had an operation mortality of $7\frac{7}{10}$ per cent., and of the survivors 42 per cent. remained well at the end of eighteen months to two years. Carl Braun and Simpson cite instances of patients who were operated upon in this manner, and who had continued alive and well for a quarter of a century.

Four years ago this subject was very fully discussed in the London Obstetrical Society, where Dr. Godson exhibited specimens from cancerous cervixes which he had amputated, and in which there had been no recurrence of the disease after a lapse of six and three and a half years respectively after the operation.

According to Ruge and Veit, cancer of the portio vaginalis has a very slight tendency indeed to spread into the cervix, but almost invariably spreads out laterally into the fornices of the vagina and the ligaments. "What possible advantage, then," asks Dr. Duncan, "can be expected in these cases by removing the uterine body (which is unaffected) over that gained by supra-vaginal amputation which gets rid (as far as the uterus is concerned) of the disease? On the other hand, cancer of the mucous membrane of the cervical canal spreads up along the canal and into the uterus, whilst it only at a late period (or even not at all) attacks the os uteri."

I need not here refer in detail to the cases in which I have myself removed the cervix, inasmuch as I have found it very difficult, as a general rule, to trace accurately the subsequent history of hospital patients once they are lost sight of, after their discharge from the wards. All I can say on this point—without either referring to my earlier cases—is, that within the past few years I have amputated the cervix in eighteen cases for cancer, or what appeared to me to be incipient cancer; and that all the patients thus treated recovered from the immediate effects of the operation, and were discharged as convalescent. In four of them the disease recurred either in the uterus or elsewhere within a year; in two it returned within two years; in one instance the patient returned two and a half years subsequently with a large cancerous ulcer of leg from which she died shortly afterwards:

and in another it recurred two years later. Ten cases have continued, as far as I have learned, in good health.

Considering, therefore, the extreme liability to the occurrence of cancer in the vicinity of cervical lacerations, the difficulty of early recognition of the disease, and the great uncertainty of treatment by any operation after the disease has become evident, I would venture to urge the removal of the cervix in all cases of extensive areolar hyperplasia consequent on parturient laceration as a preventive of the possible development of uterine cancer. This rule of practice may be objected to as involving an unjustifiable and meddlesome surgical interposition in cases where the disease might never occur were the patient left unmutilated by the removal of the cervix uteri. But though this may possibly have been the case in some of the instances in which I have performed the operation in question, I shall be content to bear that reproach with perfect equanimity as long as I feel satisfied, as I do, that by its adoption I have been instrumental in any single instance in warding off a disease so dire as cancer, which, as before observed, clinical experience has proved most liable to attack the cervical tissues in the cases above referred to.

Method of Operating.—Amputation of the cervix may be accomplished by either the infra- or supra-vaginal methods, and of these, under ordinary circumstances, I much prefer the former. In its performance we may use either knife, scissors, or galvano-cautery, or ordinary chain or wire *écraseur*. In my own practice I have in most instances employed the latter with very satisfactory results, although its use was objected to by the late Dr. Marion Sims, on the grounds that it makes a lacerated surface to heal by granulation, which takes a long time, often leaving the os *tincæ* contracted. Another objection to it is the uncertainty of amputating just where we place the chain, which often draws in more tissue than we intend, and removes more than we wish. So great has been this trouble, that some of the German surgeons have given up the *écraseur* altogether in operations on the neck of the womb, because the attachment of the bladder and, in some instances, the posterior *cul-de-sac* of the vagina have been injured, and even the peritoneal cavity opened by its greedy grasp. I have not myself observed the occurrence of any of the mishaps thus referred to by Dr. Sims in my own experience of the use of the steel wire *écraseur* for amputation of the cervix uteri.

In amputation of the cervix, the patient being in the ordinary

lateral semi-prone position, and the parts well exposed by the duck-bill speculum, the uterus should be so thoroughly drawn down by forcible traction with a strong vulsellum that the cervix protrudes well beyond the vulva, so as to elongate the structures and allow of the wire of the *écraseur* being applied as high above the diseased portion as possible, and above this again the uterine neck should be transfixed by a stout wire ligature, so as to prevent subsequent retraction, and facilitate the full use of the cautery, which I regard as essential. The advantages following the use of the actual cautery after removal of the cervix for cancerous disease are, I believe, unquestionable, and may probably be due, as M. Sédillot has considered, to the creation thereby of an adventitious fibrous tissue of low vascularity, which is more or less refractory to morbid change, and which acts as a barrier to the recurrence of the disease.

Extirpation of the Entire Uterus for Cancer as an Alternative Operation.—In this connection it appears to me necessary to refer to the comparative advantages claimed for the only alternative operation proposed for cervical amputation in cases of cancer—namely, the entire extirpation of the cancerous uterus. In so doing I shall not attempt to discuss fully the respective merits or demerits of either the vaginal method, or the supra-vaginal or abdominal operations introduced by Dr. Freund, or any of the still more recent modifications of hysterectomy suggested for this purpose. I may, however, cite sufficient facts to justify the opinion that their immediate risks, as well as the very small percentage of cases in which any of these procedures can be resorted to with any prospect of permanent benefit, are sufficient to exclude them from the position of general operations of selection, even in a disease so fatal as that under consideration.

The high authority of Dr. Martin, of Berlin, is deservedly recognised on all gynæcological questions; nevertheless, I would venture to express my emphatic dissent from the conclusion he has formulated in a paper in the Transactions of the last International Medical Congress on this important subject, in which he says—"I recommend the vaginal extirpation of the uterus as the operation, as the means, which we ought to apply in cases of cancerous diseases of the uterus, as long as the disease is limited to the uterus itself." For my own part, bearing in view the enormous mortality supervening on operations for the extirpation of the cancerous uterus, whether performed by abdominal or vaginal methods, as well as

the common recurrence of the disease in those who survive the immediate consequences of such operations, I cannot regard their employment as generally expedient or justifiable.

An excellent *résumé* of the earlier literature of the vaginal operation for extirpation of the uterus, down to that date, was given by Dr. Condie nearly forty years ago, in the American edition of the late Dr. Churchill's work on "Diseases of Women," and from this we learn that, according to Boivin and Dugness ("Diseases of the Uterus," p. 248), Palletta was one of the first, if not the first, who performed this operation, without being aware that he had extirpated more than the cervix uteri. Since that time it has been performed once by Sauter, twice by Siebold, once by Holscher, four times by Blundell, once by Barnes, once by Lizars, three times by Recamier, thrice also by Langenbeck, once by M. Dubled, once by M. Delpech. Of all the nineteen patients, sixteen died in consequence of the operation, one as late as the fourteenth day (Langenbeck's), another on the fourth (Barnes's), most of them on the following, or third at the latest; some in a few hours, or even a few moments after the operation.

Dr. Blundell performed it four times; one case recovered, three died shortly after the operation. He remarks: "If cancer of the lip may be removed with success, I should be inclined to hope that the same success might attend extirpation of the malignant scirrhus of the uterus."—"Diseases of Women," p. 180.

Velpeau says that the operation has been performed twenty-one times in twenty years, and of all these not one has been permanently cured.—*Méd. Opératoire*, p. 162.

In a valuable communication to the London Obstetrical Transactions, 1886, "On the Extirpation of the Entire Uterus" in certain cases of cancer already referred to, Dr. William Duncan has collected from various authorities the particulars of a large series of cases of these operations, of which 137 were by the abdominal method, with 99 deaths (being a death-rate of 72 per cent.), and 276 were cases of vaginal extirpation, with 79 deaths (being a death-rate of 28.6 per cent.).

"Owing to the frightful mortality attending the abdominal operations for the removal of the cancerous uterus," says Dr. J. Reeves Jackson, of Chicago, in an able paper read before the last International Medical Congress, "not less than 72 per cent., and probably considerably more, it has been generally abandoned, except in a comparatively small number of cases in which the

vaginal method is inapplicable. The mortality of kolpo-hysterectomy, according to the statistics compiled by Dr. Post, is shown to be 27 per cent. in 341 cases. This is 1 per cent. less than the result of the first 29 operations, collected by Hegar and Kaltenbach, and published six years ago; and 2·4 per cent. greater than the result in 256 cases published by Mundé in September, 1884. The statement has been made that the mortality of the operation is steadily lessening year by year. While this may be true, these tables hardly show the fact. In the case of a few operators improvement has unquestionably occurred, but it is by no means general. In those who survive the operation recurrence takes place on an average in about four months, and death in fourteen months (Sanger), so that the survivors of these 341 operations, numbering 248 persons, would give a total of 289 years, whereas, if uninterfered with, or treated only by palliative measures, they would have lived an aggregate of 413 years—a difference of 125 years. This number added to the 155, the immediate loss by the operation mortality, makes a total of 279 years. The history of surgery surely fails to furnish a parallel to this."

The conclusions with regard to the expediency of the entire extirpation of the cancerous uterus, arrived at by Churchill and Gendrin some forty years ago, are thus, I fear, only too well borne out by the general results of the incomparably better and more scientific methods now employed for the same purpose, and may be here cited. "After," says the former, "a careful examination of the results of the operation, when the uterus is *in situ*, it is really difficult to find adequate reasons in its favour, except the repugnance which every one must feel to give up entirely the hope of affording relief from the most agonising sufferings to which the female sex is exposed—(Churchill's "Diseases of Women," p. 278).

"It is evident," observed M. Gendrin, "that the extirpation of the uterus is one of the gravest and most painful operations in surgery, since it is most fatal. It ought not to be undertaken except with great prudence, nor unless it is probable that the disease is perfectly removable. The signs of this limitation of the disease to the uterus, and of its mobility, are to be acquired by the use of every mode of examining the uterus, but, unfortunately, these means are not always trustworthy. Very able men (MM. Sauter and Roux) have overlooked the extension of the disease to the ovaries and Fallopian tubes, which are often attacked when

the body of the womb is affected. We must conclude that in many cases it will be wiser to abstain from the operation."

In considering the respective merits of the early amputation of the cancerous cervix, and the necessarily later complete extirpation of the implicated uterus, the position and surroundings of this organ should, moreover, be borne in view, and especially important in this connection, as Mr. Alban Doran has observed, are the recent researches of Mierzaiosky and Leber on the dense network of lymphatic plexuses surrounding the cervix, and emptying their contents into two large trunks, passing along the broad ligament to the obturator gland, and thus favouring the rapid extension of the cancerous elements into parts almost beyond the possibility of the complete removal of the infected tissues. Under such circumstances there is, I fear, little to be ultimately gained by the more heroic procedure, and our main reliance must rest on the early recognition of the cervical disease, and its prompt treatment by the amputation of the neck of the uterus above the limits of the cancerous infection.

Even in extensive adenoma of the uterus, in which the cavity was filled and enlarged by the malignant villous outgrowth, and the patient exhausted and miserable from the pain, hæmorrhage, and fœtid discharge, I have, without resorting to extirpation, in several instances succeeded not only in relieving those symptoms, but also, as I believe, in materially prolonging the life of the patient, simply by thoroughly scooping out and removing the diseased structures. In two of these cases almost all the uterine parenchyma was thus so extensively scraped down as to leave only a thin sub-peritoneal shell, and in all of them, after curetting, the raw surfaces were treated with either the perchloride of iron or chloride of zinc. It should be added, that although the disease ultimately returned, and that generally within a year, save in one case in which the patient survived for upwards of two years and then died from other causes, yet the amount of comfort and relief to mental distress, as well as to intense physical suffering, thus afforded, was beyond question.

At the same time there can be little doubt as to the propriety in some urgent and otherwise unrelievable cases of fundal-uterine cancer which are rapidly progressing towards their fatal issue, and are attended with much suffering, of resorting to whatever measure may afford any reasonable possibility of protracting life or of relieving suffering. And under such circumstances extirpation

may be expedient, even if it were not capable of effecting in our hands all that has apparently been obtained in Berlin by this operation in the practice of Professor Martin, who states that in 44 extirpations of the uterus by the vaginal method during a period of seven years, the results, *excluding the immediate mortality of the operation*, were 9 relapses within the first year, 4 relapses at later periods, and 31 recovered up to the date of his report.

Amputation of Cervix as a substitute for Trachelorrhaphy.—In the Transactions of the Washington Meeting of the International Medical Congress, and elsewhere, I have endeavoured to show the advantages of amputation of the cervix uteri over Emmet's operation for the repair of cervical lacerations in certain cases; and as this subject seems to me as deserving of fuller consideration than it has yet received in this country, I now venture to re-submit some of my views thereon, as far as they have been confirmed by more recent experience.

In the last edition of his excellent Treatise on Gynæcology, Dr. Emmet has kindly referred to my views as to the frequency and importance of the obstetric complications arising from cervical laceration, still neither this point nor the advantages which I believe are obtainable from amputation of the mutilated and hypertrophied cervix over trachelorrhaphy in certain cases of stellar and extensive bilateral laceration are, I think, sufficiently recognised.

I may, therefore, in this connection, briefly refer to the increasing frequency of cervical lacerations in recent gynæcological practice. and to the causes assignable for this, and point out the parturient and puerperal troubles consequent on these lesions; and, lastly, I shall briefly recapitulate my clinical experience of the treatment of this accident, more particularly in reference to the utility of amputations of the cervix in some cases of extensive bilateral and stellar lacerations. The latter, when met with, in a state of chronic hypertrophic disease, cannot always be remedied by trachelorrhaphy, and may result in life-long misery, even when not eventuating. as already shown is too often the case, in cancer of the cervix uteri.

With regard to the frequency and pathological importance of cervical lacerations generally, my views are entirely in accord with those of Dr. Emmet—namely, that their importance cannot be exaggerated, since at least half the ailments amongst those who have borne children are to be attributed to lacerations of the cervix.

Cervical lacerations are unquestionably now more commonly met with than was the case in my earlier experience. This fact is probably ascribable to the larger proportion of assisted deliveries in recent midwifery practice before the sufficient natural dilatation of the os uteri. As I have before observed, the majority of child-bearing patients who present themselves for uterine examination at my hospital are found to have sustained some degree of cervical laceration, varying from a mere fissuring of the os to the most extensive stellate laceration of the cervix. Even the former must be regarded as a condition of some immediate pathological importance; whilst the latter lesion is of still greater consequence in its secondary results, and its reparative treatment is often followed by the complete subsidence of chronic pelvic complaints, formerly misinterpreted and ascribed to other morbid conditions, or displacements, of the uterus.

The effect on subsequent delivery of cicatrices resulting from cervical lacerations is a matter of practical obstetric interest, these being more frequently the cause of rigidity of the os and tedious labour than is commonly supposed. In my own practice I have seen complete uterine occlusion thus occasioned.

Laceration of the cervix, caused by the premature use of the forceps in the first stage of labour, or from precipitate natural delivery, is, moreover, a subject of considerable importance as one of the causes of flooding. I have before drawn attention to cases of *post-partum* hæmorrhage thus occasioned, of which I have met with many instances. And I may again repeat that there is reason to anticipate that, when the practice recently advocated of applying the forceps before the natural dilatation of the os uteri becomes generally adopted, as seems likely, the next generation of midwifery practitioners will thenceforth have an ampler opportunity of witnessing this accident than was the case in the practice of their, possibly, slower, but certainly safer, predecessors in the obstetric art. For although some authorities hold that the duration of labour, rather than the method of delivery, is the chief factor in the causation of fissurings of the os and cervix, it seems quite evident that no process of natural dilatation, however rapid, can be so liable to occasion rupture of the circular fibres of the os and cervix as its forcible manual extension, in efforts to complete delivery, by version or the forceps. Some years ago I brought cases before the Dublin Obstetrical Society, in which I had been called in consultation, where the cervix had been thus

torn through by the abuse of the double-curved midwifery forceps. The same accident have I seen from version, where the hand was forced, rather than insinuated, into the uterine cavity before the full dilatation of the os; and have been consulted when similar consequences had followed undue manual violence in the removal of a retained placenta. In several cases of this kind I have traced hæmorrhage after delivery to its source in the injured vessels of a lacerated cervix.

The special liability to cervical injuries under these circumstances is self-evident, and their physical evidences are obvious in the hypertrophied, truncated, fissured, or lacerated cervix, with its irregularly gaping os, semi-concealed by a glairy, or muco-purulent discharge, through which the everted endo-cervical mucous membrane may be seen extruding in so many of our child-bearing patients, and which is too often the result of injudicious or meddling midwifery practice.

In a medico-legal aspect, and especially as a proof of previous delivery, cervical laceration is further of importance, since by no other circumstances can the evidences of this injury be produced. On the other hand, the non-existence of such cicatrices or fissures is no proof of non-delivery, as the fissuring may have been so slight as to heal within the puerperal period, leaving no obvious traces of the injury.

Cervical Injuries in Relation to Chronic Uterine Disease.—The connection between laceration of the cervix uteri and many of the chronic disorders of women, formerly exclusively ascribed to sub-acute inflammation of the uterus, and especially to congestion or ulceration of the cervix, has been clearly established. In such cases the lining mucous membrane is forced down through the gaping edges of the rent as soon as the patient rises from the lying-in bed. This cervical extropium is soon a focus of irritation, spreading upwards and causing endo-cervicitis, the edges of the rent becoming the seat of erosion, or chronic follicular ulceration, the hardened cicatricial tissue around the rent, after some time, assuming a distinctive character, and becoming a veritable neoplasm. A more immediate result of bi-lateral cervical ulceration is sub-involution of the uterus, which, as well as pelvic cellulitis and other morbid conditions, may in many cases be ascribed to this cause. In the first instance, the inflammation, extending upwards from a cervical wound to the body and fundus uteri, effectually arrests the natural process of involution. In the latter it spreads along the

ligaments, giving rise to para-metritis and salpingitis, or reaches the ovaries, thus causing ovaritis or para-ovaritis.

Cervical Lesions as a Cause of Uterine Displacements.—Lastly, as a cause of uterine flexions and displacements cervical lacerations are of practical interest, for if the resulting cellulitis affects either of the suspensory ligaments so as to cause its thickening and shortening, the uterus will thereby be thrown out of its normal position, and a constant strain and sense of wearing pelvic pain must be occasioned. These symptoms can only be relieved either by attempting to restore the ligaments to their normal condition by Alexander's operation (in the permanent utility of which I have myself very little faith, as I believe that the shortened ligament must again become stretched if the cause of its lengthening remains uncured), or, and more easily, by taking off the strain of the down-dragging uterine weight by a properly-adjusted pessary. Hence the benefit experienced from mechanical support in many cases of chronic, bearing-down pelvic pain, which is probably as often consequent on cervical laceration as on any primary displacement of the uterus.

Treatment of Cervical Lacerations.—In the majority of instances the direction of the fissure is antero-posterior, and it may extend through both walls of the cervix, or, as is more commonly the case, be limited to its anterior aspect. When thus situated these fissures, if superficial, often occasion very little trouble, and in many such cases they become healed without any special care during the period of convalescence after delivery. But when from the abuse of instruments, or manual dilatation of the os, to expedite delivery, or for the removal of a retained placenta, or else from the unusual size of the child, or any other circumstance, the cervix is extensively lacerated, either bi-laterally or split into a number of sections by multiple or stellar laceration, then the results of the accident obviously become far more serious, leading to one or other of the pathological conditions just described. Under these circumstances, as a rule, surgical treatment—viz., either trachelorrhaphy or amputation of the cervix—will be necessary. The great and general value of the former, and the procedure by which it may be accomplished, are too familiar to need any reference in this connection.

Advantages of Cervical Amputation in the cases referred to.—My present object is chiefly to call attention to the fact, on which I have elsewhere dwelt—namely, that trachelorrhaphy however

useful in all appropriate instances, is by no means invariably applicable in cases of cervical laceration, occasionally failing even under apparently favourable circumstances, and that in some instances we may best treat the long train of symptoms consequent on the injuries by the amputation of the lacerated cervix.

This view is not in accordance with Dr. Emmet's opinions. But though none can more fully recognise Dr. Emmet's authority on this subject, which he has made so peculiarly his own, yet I cannot agree with him that amputation of the cervix, except for malignant disease, is necessarily malpractice. The removal of the neck of the uterus for so-called hypertrophy or for abnormal elongation, is also deprecated by Dr. Emmet, who, moreover, is equally opposed to the application of the cautery, or of caustics, to heal a so-called ulceration on surfaces that may possibly be brought into a healthy condition and united by his operation. "If," in Dr. Emmet's words, "this so-called ulceration, or this elongated cervix, should prove to be merely a laceration, the sides of which can be brought together and united so that the integrity of the parts will be as perfect as if the accident had never occurred, then to resort to amputation is malpractice." This proposition is self-evident. But in that little *if* lies the entire question; and highly as I value trachelorrhaphy, and successful as I have found it in many appropriate cases, I must repeat that in certain cases of extensive stellate lacerations of long standing, with considerable loss of substance, and accompanied with chronic inflammatory conditions of the adjacent structures, or cellulitis, as well as with great hypertrophy or hyperplasia of the injured cervix, caused by inflammatory exudations, trachelorrhaphy is inapplicable, and such cases may, I believe, be better treated by the amputation of the mutilated and diseased cervix. Moreover, this operation, according to my experience, is fully justifiable in some cases of non-traumatic hyperplasia, and chronic parenchymatous cervicitis, more especially, as I have already pointed out, in patients who are hereditarily predisposed to malignant disease, as well as in some instances of cancer of the cervix, either as the most certain prophylactic of uterine cancer, or else as a possibly curative measure in the early period of the disease, or if for nothing else than merely to relieve suffering, if not to prolong life in its latter stage. Finally, although in the majority of the cases of laceration in which I have removed the cervix, the patients have since remained sterile, still, on the other hand, there can be no doubt that this operation is called for in

some cases of sterility, resulting from the mechanical obstacle to impregnation offered by a greatly hypertrophied, elongated, and conical cervix uteri.

Within the last few years I have, for the foregoing reasons, amputated the cervix in a considerable number of cases, and so far, at least, I have had no experience of the disastrous consequences which some writers insist on ascribing to this operation.

In conclusion, I have only to express the hope that the foregoing observations may conduce to a more frequent and earlier resort to amputation of the cervix, in the prevention and treatment of uterine cancer, as well as a substitute in appropriate cases for cervical trachelorrhaphy. And although my views on the latter point have been elsewhere expressed, yet, inasmuch as the subject discussed is one, as I believe, very unduly neglected in this country, I have included some of the opinions I have long maintained on this subject, together with others which may be found novel, in the hope of inducing the thorough discussion of two closely connected questions, which appear to me of practical importance, and well deserving the consideration of the Academy.

ART. XI.—*A Method of Generating Neutral Fumes of Ammonium Chloride or Bromide for Inhalation; with Demonstration of Instrument.** By PATRICK WILLIAM MAXWELL, M.D. Edin.; Ophthalmic Surgeon, Jervis-street Hospital; Assistant-Surgeon, National Eye and Ear Infirmary, Dublin.

It is not so much my intention in this paper to discuss the merits of ammonium chloride as a local application to the mucous membrane, as to consider how it can best be applied. Most physicians are already agreed as to its efficacy in suitable cases. Some give it internally, whilst others apply it directly to the surface which it is intended to influence either as a wash or spray, or in the form of fumes. My own experience of the drug has been confined to catarrhal conditions of the nose and pharynx. I have found it most useful in cases where the secretion is scanty or nearly absent, and also in those where, though abundant, it is tenacious and difficult to dislodge. In such cases the greatest immediate benefit seems to be produced by a warm solution of the salt used as a nose

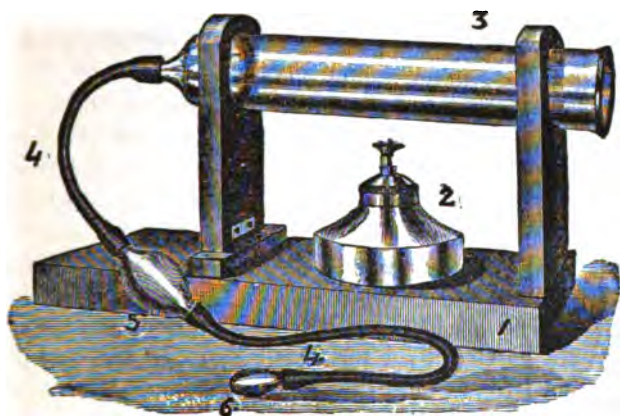
* Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, January 25, 1889.

wash. But I am inclined to think that, where repeated applications are necessary, the fumes produce, in the long run, the most good. Physicians, as a rule, prescribe the inhalation of the fumes, and certainly among patients this mode of exhibition is much preferred as being less disagreeable.

Various forms of apparatus have been devised for generating these fumes, but so far as I am aware the principle in all has been the same—viz., to obtain the vapours of hydrochloric acid and ammonia by drawing air through a solution of each, and then allowing these to mix. Minute particles of ammonium chloride are thus formed and remain suspended in the air. When these so-called fumes are inhaled, particles are deposited on the surfaces with which they come in contact or become dissolved in the secretions. Nothing could be better than this method, provided the vapours of hydrochloric acid and ammonia could be supplied in the proper proportions. In practice, however, this is seldom obtained. The ammonia being the more volatile is in excess at the beginning of the process, and being more quickly exhausted allows the acid to be in excess later on. By passing the combined fumes through a wash-bottle, this tendency is to a great extent corrected. The preliminary excess of ammonia dissolves in the water, and the solution so formed will absorb a good deal of the free acid which finally comes over. That this is not completely effected is proved by drawing the washed fumes through another bottle containing litmus solution, which usually gives a decided alkaline reaction. A proper mixing of acid and ammonia is still further interfered with by the fumes passing back into the tubes leading from the original solutions and causing a deposit of the solid salt upon their walls. One of the tubes may thus become obstructed, and the fumes from the other bottle are then inhaled alone. An excess of acid is very irritating, and is liable to aggravate the condition which the ammonium chloride is intended to relieve. An excess of ammonia does not so much matter, and in some cases is thought to be even an advantage; still, when this happens, it cannot be said that pure ammonium chloride is being inhaled, nor can one be certain whether the free ammonia, even if desired, is in excess or not of what is intended. In dry catarrh an excess of ammonia will produce a greater immediate moisture, but is apt later on to increase the dryness.

At my suggestion Messrs. Anderson & Adams (68 Grafton-street, Dublin) have produced a very simple means whereby solid

ammonium chloride is volatilised by heat, and after mixing with cold air can be inhaled.



1. Wooden stand with hinged uprights, which can fold down for convenience in packing.

2. Spirit-lamp.

3. Glass cylinder for generating fumes.

4. India-rubber tube.

5. Bulb filled with glass wool.

6. Mouthpiece.

The apparatus consists of a wide piece of glass tube, like the cylinder of an ordinary glass syringe, placed horizontally on two wooden uprights. About 15 grs. of ammonium chloride are introduced by a spoon through the wide end of this tube, and are placed in a little heap in the centre. The base is then lightly stopped with cotton wool. A lighted spirit-lamp, placed below the tube, volatilises the salt. A piece of india-rubber tubing with a glass mouthpiece is attached to the narrow end of the tube, by means of which the fumes are inhaled. A current of cold air rushing in by the large end of the horizontal tube mixes with the fumes and reduces their temperature, so that they are not more than slightly warm. These fumes are perfectly neutral from first to last, as is proved by passing them through red or blue litmus solution. Even phenol-phthalein does not become coloured. There is also no free chlorine, for starch paper is unaffected. In the course of the inhaling tube is placed a glass bulb filled with glass wool moistened with water. This prevents the fumes from being too dry. Besides being perfectly neutral the fumes supplied

by this instrument have the advantage of containing more ammonium chloride than is contained in the same volume of fumes from the ordinary inhalers.

When it is desired to apply the fumes to the middle ear a tube rather longer than the ordinary inhaling one can be attached to an Eustachian catheter, and the fumes pumped in by an india-rubber handball fitted to the larger end of the horizontal tube.

The fumes, if desired, can be medicated by *ol. pin. sylvest.*, *eucalyptus*, &c., by dropping about 5 m of the oil upon the wool at the wide end of the tube.

As the iodine and bromine salts seem, when given internally, to have a greater selective affinity for the nose and throat than the chlorides, it occurred to me to try whether their ammonium compounds could be volatilised for inhalation. In the case of iodide of ammonium I found that though the greater part was volatilised as such, still it was mixed with so much free iodine and ammonia as to be very irritating and quite unfit for inhalation.

In the case of bromide of ammonium, when only a moderate heat is used, the salt volatilises unchanged, but as the temperature rises the odour of bromine can easily be detected in the fumes. Its presence can also be shown by its blueing starch and iodide paper. It was natural to expect, at least, an equal quantity of free ammonia. Red litmus was not changed, but phenol-phthalein gave a slight red. Ammonia is therefore present, but only in very small quantity. The quantity of free bromine must also be very small, as none of the patients who have as yet used these fumes have found them irritating.

It might, nevertheless, be advisable to get rid of the bromine. The wet glass wool absorbs all the free ammonia, but allows some free bromine to pass. The caustic alkalies would absorb the bromine, but would also decompose the fumes liberating the ammonia. I asked the advice of Dr. N. M. Falkiner in this matter. He said that as resorcin absorbed iodine it would be likely to have a similar effect on bromine. To try this I added a few crystals of resorcin to half a test tubeful of bromine water. Before doing so the water bleached litmus and blueed starch and iodide paper. After the addition of resorcin it did neither. The solution changed from a pale yellow to a dark reddish-brown, and acquired a somewhat ethereal odour.

If the glass wool is wet with an aqueous solution of resorcin of about 20 grs. to the ʒ i. , all free bromine will be absorbed from the

fumes. All ammonia is also, as already stated, absorbed by the water, so the fumes may be said to be neutral and pure.

The action of bromide of ammonium fumes seems to be very similar to that of the chloride. The bromide seems to draw more fluid from the mucous membrane, its greater osmotic effect being due probably to its greater molecular weight; it seems to have a sedative action on the mucous membrane of the entire nose and throat. This has been observed for some time as regards the pharynx.

As the internal administration of the bromides is occasionally useful in tinnitus, I have thought it worth while trying its effect locally by blowing the fumes into the middle ear. Of course I do not suppose that this would benefit tinnitus of nervous origin, but it might be useful where congestion of the middle ear was the cause. As yet I cannot speak positively as to its effect in this way. I have, however, at present under treatment three cases of chronic catarrh of the middle ear with tinnitus which have resisted all the usual remedies. Each of these patients experiences a temporary diminution in tinnitus after applying the fumes through the catheter.*

The strongest hydrobromic acid (33 per cent.) gives off no vapour. I failed to produce any fumes by drawing air through such a solution and mixing it with ammonia. It is, therefore, evident that the ordinary apparatus for producing the chloride would be of no use for generating the bromide of ammonium.

ART. XII.—*Case of Acute Gonorrhœa treated by a New Method with Success.*^b By JOHN M'CAW, M.D., L.R.C.P. & S., Ed.; Hon. Physician to the Belfast Hospital for Sick Children, Queen-street; and Hon. Secretary, Ulster Medical Society.

THE frequency with which gonorrhœa comes under our notice for treatment, and the obstinacy with which it sometimes baffles our best-directed efforts, must be my excuse for bringing under your notice a short account of a case I have, quite recently, had under my care, and which I treated by a new method with great success.

* The condition of one patient remains unchanged. The other two are much improved (Feb. 16th).

^b Read before the Ulster Medical Society, on Wednesday evening, the 23rd Jan., 1889.

CASE.—H. J. had impure connection four days before he applied to me for relief. His symptoms were those of acute gonorrhœa, the disease having been considerably aggravated in consequence of his having been drinking heavily both before and since he contracted it. The yellowish-green discharge from the urethra was abundant; he suffered severely during micturition, and there was great tenderness along the whole course of the penile urethra. The night before he came to me he was obliged to rise five times to pass water. He had the disease seven years ago, and was then under treatment for about two months with a medical gentleman in this town, who gave him copaiba.

The line of treatment adopted in this case was by the introduction into the urethra of medicated bougies, and the medicament consisted of sulphate of thallin of 5 per cent. strength.

Before introducing the bougie I made the patient micturate, in order to clear the urethra of discharge, and I then passed the bougie up to the ring, and directed him to hold the meatus quite close, so that none of the application could flow out as it melted. I kept him lying on his back for 20 minutes, at the end of which time I withdrew the spring and closed the meatus with cotton wool. During the time the bougie was in the urethra he complained of smarting pain, but after I withdrew the spring he said the pain ceased entirely, and he expressed himself as feeling comfortable. He introduced one every evening after this, following carefully the directions I gave him; and on the third day after he had been with me he called to say he was quite cured, having no discharge of any kind, and no pain on passing water. The day following happened to be his busiest day in the week, as he had to work to 12 o'clock at night, and be on his feet the greater part of that time. In consequence of this he could not get using his bougie that day at all, and on the next morning there was a slight return of the former symptoms; but he began anew his treatment, and after using two more bougies, was again perfectly cured. He has remained so since, although he has undergone the heavy day of the week which caused him to relapse before, and this time with impunity. No bad after-effects of any sort resulted from the treatment, and my patient was very grateful, as well as very much surprised and delighted, for he had been looking forward to a course of copaiba-drinking with anything but pleasant recollections.

ART. XIII.—*Anæsthetics*. By GEORGE M. FOY, F.R.C.S.I.;
Surgeon to the Whitworth Hospital, Drumcondra.

(Continued from page 126.)

ON the 15th of September, 1884, at the Ophthalmological Congress at Heidelberg, Dr. Karl Koller, of Vienna, through his friend, Dr. Brettaner, of Trieste, exhibited the anæsthetic effects of cocaïn to the profession.

The alkaloid was first isolated by Gaedeke in 1855, who, in accordance with the rule of nomenclature, named it erythroxylin.

Cocaïn crystallises in large four to six-sided prisms of the clinorhombic system. Its taste is bitterish; reaction, alkaline; melting point, 208° F.; it is decomposed at a higher temperature; soluble in 704 of water, in nearly all parts of alcohol and ether. Its salts are easily soluble in water and alcohol, but not in ether. The proportion of the alkaloid found in the leaf is very variable, and, according to Squibb, seldom exceeds 0·30 per cent.

The name cocaïn was given in 1859 by Dr. A. Niemann, who thoroughly examined the leaves of the *Erythroxylon Coca* (Lamark), from which it is derived. Niemann had noticed that the leaves produced anæsthesia of the tongue, and in 1874 Dr. Hughes Bennet^a demonstrated that cocaïn was an anæsthetic.

Schroff,^b in 1862, found that 5 centigrammes administered to rabbits gave rise to disturbance of pulse and respiration, and also produced temporary mydriasis.

The benumbing effects of the chewed leaves on the tongue suggested the application of a concentrated infusion of them in painful diseases of the pharynx and larynx.^c

In 1880 Dr. Von Anrep produced a comprehensive research into cocaïn, in which he hinted that the local anæsthetising effects of the alkaloid might be made of use in general surgery. Starting on the premise that a drug which paralysed the terminal sensory nerves of the mucous membrane of the tongue could not act very differently on the cornea and conjunctiva, Dr. Karl Koller undertook a series of experiments on animals in the laboratory of Professor Stricker. His results are as follow^d:—"If a few drops of an aqueous solution of cocaïn are dropped on the cornea of a

^a Edinburgh Medical Journal. Vol. XIX.

^b Dr. William Murrell. London Medical Record. Vol. XII., p. 517.

^c Le Tribune Médical. 1882.

^d Dr. Karl Koller. Lancet. Vol. II., p. 990. 1884.

guinea-pig, a rabbit, or a dog, or if an infusion be instilled in the usual way into the conjunctival sac, the animal blinks for a while, clearly as the result of a weak irritation. After a period of from thirty seconds to one minute the animal opens its eye, which gradually assumes a peculiar expression of rigidity. If one now touches the cornea of the animal with the head of a pin, being careful not to come in contact with the eyelashes, no reflex closure of the lid occurs, the bulb does not deviate, and the head is not thrown back, as would otherwise happen. On the contrary, the animal remains quiet, and by the employment of a stronger irritation we can convince ourselves that the cornea and conjunctiva are completely anæsthetised. For instance, I have scratched the cornea of the animals on which I have experimented with a needle, pricked the same, irritated the cornea with an induction current, which was so strong that it produced a painful sensation in the fingers and was unbearable on the tongue, and cauterised their cornea with a pencil of nitrate of silver until it became as white as milk—all without a single movement on the part of the animals. The last two experiments convinced me that the anæsthesia included the whole substance of the cornea, and not only its surface. However, after I had cut into the cornea the animal showed decided signs of pain at the moment, when the aqueous humour gushed out and the iris prolapsed. Even in my later experiments on animals I was unable to determine whether the iris also could not be anæsthetised by the instillation of the solution into the corneal wound, or by a continued instillation into the conjunctival sac, begun and kept up for some time before the operation; for experiments testing sensibility of animals which are not narcotised are very difficult, and, especially if they are in the slightest degree complicated, are apt to give equivocal results. I had yet to find out experimentally whether cocain could produce anæsthesia of the inflamed cornea, and this question was answered in the affirmative when the animals on which I produced an artificial keratitis, by means of a foreign body, showed the same anæsthesia of the cornea as the healthy ones. Complete anæsthesia lasts, on the average, ten minutes when a two per cent. solution is used."

After these experiments Dr. Koller did not hesitate to experiment on himself, and conclusively proved to himself and colleagues the anæsthetic properties of cocain. He narrates the sequence of the symptoms as follows:—"

* *The Lancet.* Vol. II., p. 990. 1884.

"When a few drops of a 2 per cent. solution are dropped into the conjunctival sac, or, better still, if they are allowed to run over the cornea, together with an increased secretion of tears, a slight burning sensation is felt, which disappears after an interval of from thirty seconds to a minute, to give way to an obscure feeling of dryness. To the observer an eye thus treated has a peculiar rigid expression, very like that which I noticed as remarkable in the animals upon which I experimented. This expression arises from a decided widening of the palpebral fissure, the explanation of which I shall give later. If now the head of a pin is brought into contact with the cornea we note the absence not only of the pain usually associated, but we absolutely do not feel the contact, and all reflexes are absent. The same holds good for the conjunctiva, which loses its sensibility to heat and cold. Without any inconvenient sensation, or the slightest reflex movement on the part of the patient thus treated, we can grip the conjunctiva of the bulb with a toothed forceps, or we can pit the cornea by pressure. In this connection the only thing to be observed is that the appearance of objects becomes indistinct, which naturally is caused by the changed curvature of the cornea. This complete anæsthesia lasts from seven to ten minutes, to give way to the normal condition after a considerable period of subnormal sensibility. From fifteen to twenty minutes after the instillation the pupil begins to dilate; the dilatation reaches its maximum during the first hour, decreases decidedly in the second hour, and disappears completely in a few hours more. The dilatation is never a maximal one, and during the whole time the pupil reacts promptly to light and on convergence. Therefore the feeling of dazzlement, which is connected with atropia-mydriasis, is either entirely wanting or is present to a slight degree only. With mydriasis there appears and disappears a very slight paresis of accommodation; the near point of myself and one other person I examined for this purpose was lengthened half an inch. I have observed in the normal conjunctiva, especially in the conjunctiva palpebrarum, a decided ischæmia, about the duration of which I can say nothing certain. . . . As for the previously-mentioned widening of the palpebral fissure, the symptom precedes in point of time, at any rate, its action on the iris and ciliary muscles, and as it appears almost simultaneously with the anæsthesia of the cornea and conjunctiva, I have referred it to the anæsthesia as a cause, and explained it by the disappearance of the irritations which normally affect the cornea

and conjunctiva, and cause the usual width of the palpebral fissure."

Dr. Koller then brings the same practical and important points forward :^a—

"1. The anæsthetic effects of cocaïn can be increased to a certain limit—that is, if cocaïn be dropped into the eye after the partial cessation of the anæsthesia, a second complete anæsthesia results which lasts longer than the first. In this way I have produced complete anæsthesia, lasting from fifteen to twenty minutes, from the last application, by a continuous repetition of the application at intervals of five minutes.

"2. The anæsthetic effect is pre-eminently a local one—i.e., it is stronger on those places to which the solution has been directly applied and where it has been for some time in contact.

"3. Since, as may be proved, cocaïn is absorbed, and after every instillation a quantity, even though small, reaches the anterior chamber, one would *à priori* expect that the deeper portions of the eye could be rendered anæsthetic were it possible to introduce larger quantities of cocaïn into it. But as, on the one hand, a certain time is necessary for its absorption, and, on the other, the anæsthetic effect in point of time is limited, the anæsthesia of the cornea when the iris and ciliary body began to be effected, it would therefore be necessary to anæsthetise the cornea again. I believe I can meet both of these conditions, as the following will show. By means of a continuous application repeated every five minutes with a 5 per cent. solution kept up for some time (about half an hour), I succeeded in producing such an effect on the deeper parts of the bulb that its sensibility to strong pressure was very decidedly diminished."

Cocaïn ($C_{17}H_{21}NO_4$) is obtained from the Erythroxylon Coca. N. O. Linacæ.^b The plant usually attains the height of six or eight feet, and resembles the blackthorn in its small white flowers and bright green leaves. The natives of Peru and of the neighbouring provinces, at least in the hot moist regions, cultivate the shrub.^c The original home of the species in America is not yet clearly ascertained. Gosse has shown that early authors, such as Joseph de Jussieu, Lamark, and Cavanilles, had seen only cultivated specimens. An attempt is being made to cultivate the plant in India.

^a Ut supra.

^b Chemistry of Common Life. Johnson and Church.

^c Origin of Cultivated Plants. De Candolle.

The name Coca^a is derived from the Aymara (Indian) word *khoka*, signifying "plant."

And it is probably this derivation that caused Sir Robert Christison's suggestion of spelling the word *Cuca* to be rejected, though it so closely corresponded to the Spanish way of spelling the word.

On the arrival of the Spanish in Peru the plant was found to be held in high esteem, and its narcotic properties were well known. Poeppig^b expatiates on the injurious effects of the coca leaf as used by the natives; and W. H. Prescott^c thus describes the mode of preparation and the use of the coca leaf:—"The leaves when gathered are dried in the sun, and, being mixed with a little lime, form a preparation for chewing, much like the betel leaf of the East. With a small quantity of this *cuca* in his pouch and a handful of roasted maize, the Peruvian Indian of our time performs his wearisome journeys, day after day, without fatigue, or at least without complaint. Even food the most invigorating is less grateful to him than his loved narcotic."

During the reign of Tupac Inca Yupanqui, the most renowned of the "Children of the Sun," and in that of his warlike son and successor, Huayna Capac, during whose reign Vasco Nunez de Balboa, from a "peak of Darien," first took possession of the new ocean and the new continent in the names of Ferdinand and Isabella, and even to the time of the overthrow of the tyrannical Atahualpa, the plant was reserved for the use of the Incas, the "cocals," or coca plantations, being owned by the State, and its use did not become general until Pizarro had overrun the country.

Their addiction to the narcotic is shown by the permission to use it during religious services, and even during the worship of *Pachacamac*, "he who sustains or gives life to the universe," the Chief Priest, or Villac Vmu, chewed his coca leaf; and, according to von Tschudi, unless they were supplied with them the favour of the gods would not be obtained. The suppliant for favour should approach with the coca ball, *acullico*, in his mouth, and no business without the benediction of the leaf was believed could prosper; and finally, divine rites were paid to the shrub.

When used for some time, a coca habit, as strong as and

^a The Chemistry of Common Life. Johnson and Church.

^b F. Quarterly Review. No. XXXIII.

^c History of the Conquest of Peru. P. 60.

similar to an opium habit, results, and the unfortunate victim to the habit, *coquero*, becomes a pitiable object. Its first effect is to weaken digestion. To loss of appetite succeeds an inordinate desire for animal food. Then dropsical swellings and boils come on; the breath is foetid, lips pale, and the teeth are discoloured; the eyes are dim and sunken, and the skin becomes of a yellow tinge.

The early travellers were full of stories of the strength-giving qualities of the plant, and Mr. Martindale^a gives some interesting notices from Pedro de Cieza de Leon, Nicholas Monardes, Augustin de Zarate, and Joseph Acosta.

Clusius,^b writing in 1605, says that when he asked the Indians why they always had the coca in their mouths, the answer was that when using it neither hunger nor thirst annoyed them, while their strength and vigour were confirmed. Johnson^c considers that the least we can concede to the plant is that it enables the body to feed upon itself, so to speak, without feeling the hunger pains—a fact that may be ascribed to its anæsthetic effect on the mucous lining of the stomach, which is probably due solely to the presence of the alkaloid cocaïn.

Besides cocaïn the plant contains *hygrine*—a thick, oily liquid, with an alkaline reaction and a biting taste. It was discovered by Lossen, in 1862, but has no known therapeutic value.

The following graphic account of the action of cocaïn, in medium and full physiological doses, is that of Anrep and Rossbach's^d experiments, taken from "Nothnagel and Rossbach's Therapeutics":—"After injecting a moderate dose (0·01 gm. per kilo) into a quiet and tractable dog, his manner became almost immediately changed. He did not remain quiet a moment, but danced in a circle round about his master on his hind legs, with his body erect and the forelegs stretched out. All his muscles were in constant motion, the tail wagging, the chest and abdomen trembling; not with convulsions, but exactly as if he were under the influence of sudden and most intense joy—by the return, say, of his master after a long absence. His expression and actions were only those of pleasure. There was not the slightest appearance of distress. This condition lasted for hours, during which he was not quiet

^a Coca, Cocaïn, and its Salts. 1886.

^b Chemistry of Common Life.

^c Ut *supra*.

^d Reference Handbook of the Medical Sciences.

one second while he was left free. If the hand was laid on his head or back he was able voluntarily to keep quiet, and only his hurried respiration betrayed his excitement. After from one to three hours he gradually became quiet, without any appearance of exhaustion, and continued fresh and lively.

"If the dose were increased to $1\frac{1}{2}$ centigrams per kilo (0.015 per 1,000) the excitement was intensified and distressing. He did not recognise his master, his expression was altered, he whined, barked, and trembled. He was frightened at every noise, carried the tail between the legs, wagged his head like a pendulum, and stood for fifteen minutes keeping up this rhythmical oscillation, with hurried breathing, dilated pupils, and a dry mouth. This state was suddenly succeeded by one of intense and reckless joyousness, lasting another quarter of an hour. Then he jumped unceasingly about one of the experimenters in a circle, as if bewitched. It was very difficult to call him away, not because he could not hear his master's voice, or did not wish to obey him, but because he could not resist the impulse which restrained him where he was. At last, after persistent calling, the dog appeared to throw off this spell, and rushed with great joyousness to his master, only to begin again his antics around him as he had previously done around the first observer. After three or four hours he became, as in the first instance, gradually quieter, slept, and recovered.

"After a dose of 2 centigrams per kilo (0.02 per 1,000), there was a tremendous excitement of the muscular apparatus and the cerebrum, but soon followed by great weakness. He could not stand, but lay on the side, with the limbs drawn up, and had difficulty of breathing. Consciousness was still present. When called he raised his head and looked entreatingly at the speaker. After twenty minutes clonic convulsions occurred, with swimming movements of the hind feet; occasionally opisthotonos. These manifestations became more severe in character; consciousness was lost; the head was constantly beaten upon the ground, and during an hour he was not quiet for a minute. Then spells of quiet appeared, which became longer and longer, and were followed by sleepiness, loss of appetite, and recovery."

Schmiedeberg* says that, like veratrin, it acts on the terminations of the sensory nerves; but, unlike it, it does not cause any

* *Elements of Pharmacology*. By Oswald Schmiedeberg. Trans. by Dr. Thomas Dixon, Sydney, N. S. W. 1887.

stimulation, but induces numbness from the first. It produces a "superficial anæsthesia," while the sensory fibres remain intact. "The sensitiveness to pain is not, however, removed in cases of deep wounds, on account of its purely superficial action; the sensitiveness to reflex action is toned down, and for this reason all superficial operations can be executed, if cocaïn has been applied beforehand, without the usual painful sensations being felt by the patient."

When given in considerable doses it acts on the central nervous system. In mankind it accelerates the pulse and respiration, and induces giddiness, discomfort in the head, dilatation of the pupil, and hallucinations. In animals death results apparently because of paralysis of respiration.

The use of the new anæsthetic became universal. Dr. H. D. Noyes introduced it to his American brethren through the *New York Medical Record* of October 11th, 1884. A short notice of the case appeared from Dr. Beer, of Vienna, in the *Lancet* of the 4th of October, 1884, and in the issue for the 22nd of November Dr. Prosser James recommends it as an anæsthetic for "depriving the fauces of sensibility."

At a meeting of the Ophthalmological Society of the United Kingdom, on the 11th of December, 1884, Mr. Arthur Benson,* of this city, brought forward a paper on the action of hydrochlorate of cocaïn on the eye, in which he stated that he had, under its influence, removed an aural polypus. "He was certain that the drug, when used pure and in abundance, would prove one of the most valuable (anæsthetics) ever discovered;" and in the April number of the same journal for 1885 Dr. Walter Smith's article on cocaïn tells how rapidly the anæsthetic had found favour with the profession.

In all painful conditions of mucous surfaces, and for minor operations, cocaïn quickly became the favourite anæsthetic. Nothing surgical seemed beyond its proper domain. J. Grossat (*Comptes Rendus*, XCIX.) recommended hypodermic injections of the hydrochlorate for anæsthetic purposes in general surgery. Even for hydrophobia it has been recommended as a remedy by Dr. Keegan (*Les Nov. Rem.*), who reports that he has successfully treated the disease by painting the fauces and pharynx with a 4 per cent solution of cocaïn. Breasts were ablated under its influence, and it has been used successfully in a case of amputation

* Dublin Journal of the Medical Sciences. Vol. LXXIX., p. 81. January, 1885.

of the thigh, and also in the operation for a strangulated hernia. Such a valuable anæsthetic soon found more claimants than one for its introduction, and the following article from the Paris correspondent of the *Lancet* (Jan. 3rd, 1885) is of interest:—"All (the credit) that can be accorded to him (Dr. K. Koller) (and that is a good deal) is his being the first who applied cocaïn to ophthalmic practice, for its anæsthetic properties had long been known. Other writers, in giving the history of coca and its derivatives, and of their therapeutical applications, have entirely ignored what has been done in France with these drugs. Dr. Charles Hauvel, the celebrated laryngologist of Paris, has, to my own knowledge, employed a concentrated extract of coca since 1869 at his clinique as a local anæsthetic in vaso-pharyngo-laryngeal affections. In 1877 Dr. Scoglia, Dr. Hauvel's chef de clinique, published a report in the *Gazette des Hôpitaux*, in which the anæsthetic property of coca, and its efficacy in painful affections of the throat, was brought to the notice of the profession. In 1875 Dr. Coupard, another of Dr. Hauvel's chefs de clinique, published in the *Tribune Médicale* a report entitled 'La Coca dans les Affections douloureuses du Pharynx et du Larynx,' in which a strong alcoholic extract from the leaves of the coca is stated to have been employed for painting the throat. In 1880 Dr. Coupard, in conjunction with Dr. Boodereau, undertook a series of experiments with hydrochlorate of cocaïn, which was obtained from the plant under their immediate supervision, at which the local anæsthetic and mydriatic effects were clearly established; but, for some unaccountable reason, this discovery did not receive further attention, either in this country or elsewhere, until the announcement made by Dr. Koller at the Ophthalmological Congress held at Heidelberg in September last. The experiments of Dr. Coupard were repeated, and verified in 1882 by Dr. Laborde, the well-known experimental physiologist, who, in addition, proved that cocaïn possessed general anæsthetic properties."

In time the unfailing report came that cases had occurred in practice in which cocaïn produced alarming symptoms. Dr. Emmet Holt (*New York Medical Journal*, October 23rd, 1886) told of several cases of restlessness and convulsive movements following the application of a 4 per cent. solution of the hydrochlorate for rheumatism.

A series of cases were published in the *Medical Press and Circular*, in which unpleasant effects resulted from its use: Dr. Nicholson's

two cases, in which gangrene followed the operation of circumcision; Dr. Samuel J. Earles' case (*Maryland Med. Journal*), where tetanic convulsions and loss of consciousness followed its use for hæmorrhoids; and the case of Dr. J. H. Way (*Medical News*), in which the injection of a quarter of a grain of the alkaloid produced a fall in his respirations until they only equalled nine in the minute, and an increase in the rapidity of his pulse until it reached two hundred.

On the 8th of November, 1887, Dr. J. B. Mattison, of Brooklyn, read before the American Association for the Cure of Inebriates "A Paper on Cocaïn Toxæmia," in which he records some thirty cases of cocaïn poisoning, and arrives at the following conclusions:—There is a lethal dose of cocaïn; this dose is uncertain; toxic effects are not rare. The following highly instructive case of cocaïn toxæmia is reported in Wright's *Medical Annual* for 1887. The case occurred in the practice of Dr. G. Bock, who administered an hypodermic injection of six drops of a 20 per cent. solution between the gum and alveolus previous to a dental operation. The patient was a strong woman, twenty-eight years of age. In five minutes the woman presented the appearance of an approaching fainting fit. She answered all questions distinctly, but in another five minutes complained of not being able to see. The sensory nerves then became generally affected. Yet the pupils were normal; there was no particular pallor or cold perspiration; the conjunctiva reacted to irritation; the breathing was regular; the pulse full and strong, at between eighty and ninety. She lay as one asleep, but with open staring eyes, and talking as in delirium. Strong coffee was given her. The upper extremities were relaxed, as in chloroform narcosis; the lower extremities were tightly pressed against the operating chair. Smelling salts and sprinkling with cold water had no effect; nor did two injections of ether alter her condition. Two medical men who were consulted agreed that anæmia of the brain had resulted from contraction of the vessels. Examination of the eye with the ophthalmoscope showed that the veins were normally full, the arteries rather thinner and paler than natural, and the papilla of the optic nerve of the normal fulness. The inhalation of three drops of nitrite of amyl brought colour into the face in a few minutes; and in six minutes, another three drops having been inhaled, there was a considerable flushing of the face and return of consciousness. A good night's sleep followed, and the woman was in perfect health next day.

In the *Lancet* for the 21st of November, 1885, Dr. F. de St. Hall records a case of laryngeal spasm caused by cocain spray (10 per cent. solution) in a patient, fifty-six years of age, who was suffering from asthma. The administration of chloroform vapour overcame the spasm, but it was not until four hours after the attack that the patient had quite recovered from the shock.

In the case of accidental poisoning of a male adult patient, aged thirty, by a dose of twenty grains of the alkaloid in the University College Hospital, death, which was preceded by "some arching of the back resembling the opisthotonos of tetanus," and some convulsive movements of the limbs, occurred in an hour's time. Consciousness was retained almost up to the end. The *post-mortem* examination revealed congestion of the lungs, brain, and mucous membrane of the stomach.^a The deceased had suffered from tuberculosis of the lung, and the left kidney had almost been entirely destroyed. Unfortunately the initial symptoms were not observed. The kidney disease had so crippled the elimination power of the deceased that he succumbed to the dose,^b "although in one case twenty-three grains and a half were swallowed without fatal results." In the same journal Mr. Henry Ashworth gives a case of unusual and alarming effects following from the subcutaneous injection of one grain of the alkaloid in "a middle-aged man, and fairly well nourished, who was admitted (to the Halstead Cottage Hospital) for recurrent cancer of the upper lip."

Even small doses have been known to produce toxic effects in healthy individuals. Mowat^c relates the case of a man, aged twenty-nine, in whom the injection of one-seventh of a grain caused coldness of the extremities, pallor, and difficult respiration. Numerous cases of cocain toxæmia are to be found in current medical literature, as a reference to Neale's Digest (First Appendix) will show.

That cocain does not fulfil all the expectations of its early eulogists is undoubted. Dangers attend its use, as they do that of all active drugs; but more than that, its physiological effects are not such as to warrant the unstinted praise so freely bestowed on it a few years since. Its anæsthetic action is too local to make it of any service in other than superficial operations. From my own

^a Medical Press and Circular. Feb. 6th. *Lancet*. Feb. 9th. British Medical Journal. Feb. 9th, 1889.

^b *Lancet*. February 9th, 1889.

^c British Medical Journal. February 9th, 1889.

experience of it I found that the hypodermic injection did not produce anæsthesia of the deeper tissue, so that whilst the skin-cut was painless the sensibility of the subcutaneous and muscular tissues was little, if at all, affected.*

The alkaloid is also said to interfere with the healing process when used hypodermically. Professor Frey,^b of Vienna, found that the operation wound made under the influence of cocain anæsthesia, though "duly treated with antiseptics, no union *per primam intentionem* took place, as the margins of the incised wound had become necrotic and fallen off owing to a suppurating process. This condition could be explained only by the suggestion that owing to the influence of cocain on the vaso-constrictors a complete stagnation of the circulation was caused."

Even in ophthalmic surgery it has not fully met all the requirements of the profession. In a communication to the Paris Academy M. Javal^c stated that the instillation of a solution of cocain increased the tension of glaucomatous eyes; and at a meeting of the Ophthalmological Society on the 12th of November, 1885, Messrs. Nettleship, M'Hardy, Brown, and Lang^d stated that they suspected cocain as the cause of an epidemic of panophthalmitis which was then prevalent. Mr. Nettleship also stated that he had found interstitial keratitis much more common since he had used the drug. Dr. Dudley Buxton^e points out that for operations on the cornea cocain is not free from disadvantages.

"Excision of the eye in most cases in which cocain was used proved painful—at all events during the last stages, when the deep structures were divided."

On its use in dental practice Mr. C. E. Truman^f contributes a valuable article, in which he gives a short summary of each case. In the first case, a girl aged fourteen, the patient fainted after the operation; the sixth case, a man aged nineteen, also fainted; the eighth, a woman aged twenty-five, felt pain during the tooth extraction; the ninth case, a girl aged sixteen, results unsatisfactory; eleventh case, partial anæsthesia; thirteenth case, a boy aged fourteen, result unsatisfactory; sixteenth case, a woman

* Medical Press and Circular. Vol. II. 1888.

^b Medical Press and Circular. September 7th, 1887.

^c Medical Press and Circular. 12th May, 1886.

^d Lancet. 28th Nov., 1885.

^e Anæsthetics. By Dudley Wilmot Buxton, M.D. P. 138.

^f Handbook of Therapeutics. Ringer. Twelfth Edition. P. 533.

^g St. Thomas's Hospital Reports. N. S. Vol. XV., p. 93.

aged thirty, "complained of feeling sick and faint, and seemed rather bewildered."

Dr. R. Wood^a records, in the *Australasian Medical Gazette*, alarming symptoms of poisoning following a dose of four drops of a 20 per cent. solution of cocaïn given for dental neuralgia. "Cramps, and rigidity of fingers, arms, and legs, with a tendency to opisthotonos," were observed.

Heymann^b produced cocaïn toxæmia by brushing the fauces and larynx of a boy, nine and a half years old, with 5 grm. of a 20 per cent. solution. "The operation was scarcely finished when the boy began to reel off the seat, and when removed to a sofa lay in an apathetic somnolent condition for about five hours."

Of its use in the minor operations in general surgery Russian surgeons speak favourably. Dr. J. J. Minkiewicz,^c of Tiflis, reports (Proceedings of the Caucasian Medical Society) that under the anæsthesia produced by the hypodermic injection of cocaïn, he excised subcutaneous atheroma, lipoma, extracted bullets, and so forth. Strange to say, he did not find it so useful in tonsillotomy. Dr. Tchernomordik^d (*Vratch Mot.*, 1887) gives a record of twelve operative cases, some of which were of considerable importance, as successfully anæsthetised by hypodermic solutions of cocaïn.

As an anæsthetic for operations on the urethra cocaïn became largely used, but that in these cases there also is danger is shown by Dr. J. C. Sims' case, in the Episcopal Hospital, Philadelphia, in which death resulted after the injection of one drachm of a 20 per cent. solution of the muriate. "The instrument was scarcely taken out of the urethra when the patient made a foolish remark, the muscles of his face began to twitch, the eyes staring, pupils dilated, frothing at the mouth, face congested, respiration interfered with, and ending in a violent epileptiform convulsion, lasting for some seconds. These convulsions were continued, with increasing violence, several times a minute, the whole muscular system taking part in the spasms, requiring considerable force to keep him from falling off the table." At the end of twenty minutes from the first convulsion the man was dead.*

The physiological action of the alkaloid is, according to Dr. T.

^a Dublin Journal of Medical Science. Vol. LXXXII., p. 508. December, 1887.

^b Dublin Journal of Medical Science. Vol. LXXXIII., p. 150. February, 1887.

^c London Medical Record. Vol. XV., p. 145.

^d Ut supra.

* Phil. Med. News, July 21, p. 71, and Braithwaite's Retrospect of Medicine, Vol. XCVIII., p. 66.

Lauder Brunton,* “due to stimulation of the peripheral ends of the sympathetic.” In its action on the nervous system “it affects first the cerebral hemisphere, next the medulla, and afterwards the spinal cord. . . . The convulsions are of cerebral origin, and cease when the spinal cord is divided. The motor columns of the spinal cord appear to be unaffected, but the sensory are paralysed. In its action on respiration and circulation, cocaïn, to a certain extent, resembles atropine, and it does so also in its action on the pupils, intestinal movements, and salivary and sweat glands. The respiration is greatly increased at first, afterwards diminished, and death occurs from respiratory paralysis. Small doses quicken the pulse and raise the blood-pressure; large doses slow the pulse and lower the blood-pressure. The quickness of the pulse appears to be due to paralysis of the vagus. . . . The temperature is generally raised.”

Elimination of the drug by the kidneys is often accompanied by the production of albumen and sugar in the urine. Von Anrep regards these as resulting from the asphyxia caused by the cocaïn's paralysing action on the respiratory muscles, and not from any direct action of the alkaloid ^b (Buxton).

Aqueous solutions of the salts of cocaïn are liable to undergo decomposition by the growth of a fungus; the addition of salicylic, boric, and carbolic acids, and also of chloroform have been recommended to prevent the deleterious fungoid; but as yet no satisfactory results have been obtained. Many of the unpleasant effects of the alkaloid are ascribed to the presence of the fungus.

As an antidote in cases of cocaïn poisoning, nitrite of amyl has been recommended. It dilates the peripheral vessels. To prevent death from respiratory tetanus, Mosso, as the result of numerous experiments, recommends the inhalation of ether or chloroform. Chloral hydrate which antagonises all the actions of cocaïn poisoning, except the rise of temperature, has not been of much service in actual cases of poisoning, and the same statement applies to morphin, which is a physiological antidote to cocaïn.

[To be continued.]

* *Pharmacology, Therapeutics, and Materia Medica.* Third Edition. 1887.

^b *Handbook of Therapeutics.* Twelfth Edition.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Fatal Illness of Frederick the Noble. By Sir MORELL MACKENZIE. London: Sampson Low, Marston & Co. 1888. Pp. 246.

AN attempt to review this extraordinary production is a task both difficult and painful—difficult, because although ostensibly an answer to grave charges brought by his German colleagues against the writer as to his conduct in respect of the case of the late Emperor, yet, by his own deliberate action, the majority of those who are appealed to by the writer to judge of the matters in dispute have been deprived of the opportunity of an accurate knowledge of the nature and extent of those charges as they were formulated in the Official Report issued from the State Publishing House in Berlin by the withdrawal from circulation of the English translation thereof under pressure from the author himself.

It must, further, be a cause of deep pain to those who love and honour their profession, that passages such as those, which unhappily form a large proportion of this book, should have been published under the guise of a serious medical history.

Sir M. Mackenzie has undoubtedly strengthened the position of his accusers by the publication of this book. Nothing at all so damaging to his case has been written by his most bitter and active adversaries. The vulgar abuse heaped on every one who did not agree with or defer to his opinion; the almost equally objectionable glorification of those who sided with him; the fulsome adulation of his unfortunate patient, mingled occasionally with a certain patronising mention of exalted personages with whom he was brought into contact, must all utterly disgust any one who reads the book, and dispose them to doubt even the most serious statements contained in it.

From a professional point of view the book, of course, cannot be taken seriously; it is entirely deficient in anything even approaching a calm discussion of facts or deductions from them.

It is divided into three sections—"Historical, Controversial, and Statistical," introduced by a preface in which the author attempts to justify what he is pleased to call "a good deal of plain speaking." In it he also complains (p. 5) that the Prussian Government kept important documents from the public; "amongst them may be mentioned the protocols of Professor Von Schrötter, Dr. Krause, and myself, drawn up in November, 1887." If Sir M. Mackenzie was so very anxious that this important protocol should have been made public he had only to permit the publication of the translation of the Official Report, where, at p. 44, it may be found in full.

Passing to the "Historical" section we meet (at p. 10) the first—a comparatively mild—specimen of the unfair and misleading allusions to the German medical men by whom his advice had been sought. Professor Gerhardt he describes as "a physician who, in the midst of his labours in other departments of medicine, had found time to give some attention to diseases of the throat." Yet in Vol. I. of his book on "Diseases of the Throat and Nose," Sir M. Mackenzie speaks of this gentleman as "this distinguished physician," and in the index is a list of references to him, almost the longest of any specialist quoted in the work.

Professor Tobold, of whom he speaks in a sneering way, is, of course, at least quite as widely and favourably known as a laryngologist as any living specialist.

At p. 24 is mentioned an incident which, in our opinion, is the only matter of which Sir M. Mackenzie had legitimate and good cause for complaint—viz., the charge that during his attempt to remove a portion of the growth he wounded the healthy right vocal cord of his august patient. Now, we cannot for a moment believe that so expert an endolaryngeal operator as Sir M. Mackenzie doubtless is could have thus blundered, more especially as the parts had been brought well under the influence of cocaine. However, this accusation was certainly made, and this probably had much to do with the subsequent unfortunate relations between the German and English practitioners.

At p. 29 we find a "Statement of my position," which simply amounts to an open diagnosis, and Sir M. Mackenzie, at p. 36, covers his "position" by throwing the onus on Professor Virchow. It is here worth noticing a quotation made by Professor Bergmann in the Official Report from Sir M. Mackenzie's own book on "Growths in the Larynx," where, at p. 36, he says—"In such cases, where small portions are coughed out or removed with the

assistance of the laryngoscope, it is impossible to trust to the microscope for a differential diagnosis. I have known several cases in which the histological appearances were completely opposed to those of carcinoma, while the clinical course of the disease betokened the very opposite, or *vice versâ*."

Even after the operation of tracheotomy had become necessary, Sir M. Mackenzie would not admit, as a certainty, the malignant nature of the disease, now progressing so rapidly; and when finally forced to do so attributes the destruction of the patient's larynx to the results of the bungling of which he accuses the German surgeons, apparently quite ignoring the natural progress of the disease.

We cannot notice in detail the various parts of this section, in which no opportunity is lost of holding up to ridicule those whom the writer considered to be in league with his antagonists, his former colleagues.

At p. 145 we find what must be regarded as the most repulsive part of this extraordinary "history"—namely, the deliberate charge brought against Professor Bergmann of having actually hastened the Emperor's death by forcing a canula into the tissues of the patient's neck while endeavouring to pass it into the trachea. A note at foot of p. 153 is as follows:—"At a later period I came to the conclusion that the quickened respiration which was first noticed on this occasion was due to 'shock,' or, in other words, to the injury done by Von Bergmann on the afternoon of the previous day. Before that surgeon had *dealt his fatal blow*,^a hurried respiration had never occurred."

Fairly "plain speaking" without doubt. Except for the terribly serious nature of this charge, for which there appears to be no foundation beyond the writer's assertion, it might be regarded as merely a set-off to the accusation that he had himself injured the healthy vocal cord, as above mentioned.

In this connection it may be remarked that notwithstanding the repeated statements as to the occurrence of a traumatic abscess in front of the trachea, as the result of Professor Bergmann's "fatal blow," nothing at all indicating that such an abscess had existed can be found in the official Report of the autopsy.

And we may here observe that in this Report^b of the autopsy, which bears Sir M. Mackenzie's own name, it is expressly stated

^a The Italics are ours.

^b The Illness of the Emperor Frederick the Third. Eng. Trans. P. 94.

that "in the tissue of the still existing part of the trachea there was no evidence of cicatrisation, but purely normal conditions." And yet Sir M. Mackenzie, at p. 105 and elsewhere, attributes the constant coughing and bloody expectoration to the inflammation caused by Bergmann's tubes, which he expressly says, in a note at foot of p. 117, produced "bleeding ulcers" in the trachea, which, if they had ever existed, must have left alterations which could not have escaped detection after death.

Further comment on this unedifying "history" is unnecessary.

"Section II. Controversial"—cannot be seriously discussed, since a controversy presupposes another view of the matter under consideration, and this, as we have before observed, has been rendered unavailable to all save a few by the suppression of the "Report."

Section III. Statistical"—may also be dismissed, as it deals with results of external operation on the larynx, and since any such procedure had been, from the first, excluded by Sir M. Mackenzie's own refusal to sanction it, on the ground of the uncertainty of the diagnosis, the reason of its appearance at all seems to be merely to give an air of scientific importance to the book.

We sincerely trust that it may never again become necessary to notice in the pages of this Journal a book the contents of which could be considered so deficient in even the slightest approach to the sentiments and spirit which animate the scientific physician, the dignified and impartial critic, and lastly, but surely not least, the English gentleman.

Sketches of Hospital Life. By HONOR MORTEN. London: Sampson Low, Marston, Searle, & Rivington (Limited). 1888. Pp. 74.

SIX sketches appear in this little book; of these four are reprints, and two appear for the first time. They are picturesque, but in the main faithful, sketches of hospital life and experience from various standpoints, and may be read with interest and profit. No III., on "Adjuncts to the Hospital," has more purpose than the others, as it points out some of the faults of Convalescent Homes as at present managed. "From a Patient's Point of View" and "The Children's Favourite" are also capital sketches.

A Manual of the Operations of Surgery. By JOSEPH BELL, M.D., F.R.C.S., Edin.; Consulting Surgeon to the Royal Infirmary, and Surgeon to the Royal Edinburgh Hospital for Sick Children. Sixth Edition. Revised and Enlarged. Edinburgh: Oliver & Boyd. 1888. Pp. 336.

THIS work is already so generally and so favourably known that to review it any length would be a work of supererogation. The preface to this, the sixth edition, is short and to the point. "To keep the work up to date has been the author's aim in the sixth edition. Much of it has been re-written, and many new operations added." In many instances we find the book is up to date, but in others the author has failed to accomplish his aim. To give an instance, we find the greater portion of two pages (pp. 249-50) devoted to the old worn-out controversy as to whether, in cases of strangulated hernia, the sac should or should not be opened. Again, p. 212, in describing excision of the tonsils, he says:—"By far the best and safest method of removing the redundant portion is to seize it with a volsellum, and then cut it off by a single stroke of a probe-pointed bistoury." Is the author aware that *fatal* hæmorrhage has followed this "best and safest method," and that the guillotine is innocent of any such result?

The value of the book would not have suffered by the omission of the last paragraph but one in it.

On the whole, however, the book well deserves the favour with which it has been already received, and it will be found, as heretofore, to be a reliable guide for "senior students, house surgeons, and junior practitioners."

PROGRESSIVE FACIAL HEMIATROPHY.

PROFESSOR J. STEWART, Montreal, brought before the Medico-Chirurgical Society of that city a case of progressive facial hemiatrophy occurring in a boy fourteen years of age. The wasting commenced two years previously, and was consequent on a frost-bite of the left cheek and ear. The skin, subcutaneous tissues, the muscles, and the bone are all atrophied. "The lower jaw is not only thinner on the left side, but also shorter. There is also a distinct atrophy of the bones of the upper jaw. . . . There is distinct atrophy of the left half of the tongue. . . . The arches of the palate are normally and equally developed. There is no deviation of the uvula. There is no affection of any of the special senses."—*The Montreal Medical Journal*, January, 1889.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SAMUEL GORDON, M.D., F.K.Q.C.P.I.
General Secretary—W. THOMSON, M.D.

SECTION OF MEDICINE.

President—LOMBE ATTHILL, President of the King and Queen's College
of Physicians.

Sectional Secretary—A. N. MONTGOMERY, M.K.Q.C.P.

Friday, December 14, 1888.

The PRESIDENT in the Chair.

Exhibition.

DR. WALTER G. SMITH exhibited a lad who was a case of recovery after pneumothorax, in whom there was persistent large secondary pleuritic effusion and dexiocardia.

Chromidrosis.

DR. ARTHUR WYNNE FOOT made a communication on chromidrosis, in which he reviewed the present position of the subject. Tracing the history of the disease, from the first case recorded by Dr. Yonge, of Plymouth, in 1709, up to the present year (1888), he found that there were forty-six admittedly genuine cases on record—cases which had passed repeatedly through the crucible of criticism, and to which no exception could be taken. Of these forty-six cases six had occurred in men, and forty in women—for the most part young and unmarried. That so small a number as forty-six cases should have been reported in the 180 years since Dr. Yonge first drew attention to it, Dr. Foot considers to be a proof of the rarity of its occurrence. That it is a curious and striking affection is shown by the amount of incredulity which has often been exhibited in regard to it. As recently as the year 1861 the

Medical Society of the Hospitals of Paris gave an open verdict on the subject, notwithstanding the strong pleading of M. Hardy in its favour; and in the same year the Imperial Academy of Medicine declined to allow de Méricourt's essay on chromidrosis to be published in their memoirs, on the ground that the authenticity of the cases was doubtful, although the Committee which they had appointed to report on it recommended it merely for publication, without asking for the expression of any opinion on its merits. On April 4th, 1882, a Committee of the Clinical Society of London reported "that chromidrosis has an undoubted existence as a genuine affection."

He was not inclined to follow Féréol in substituting the name chromocrinia for chromidrosis; for if the views of Meissner and Unna are correct, that the coil of the sweat gland secretes fat and the end of the duct sweat, disorder of the coil glands would account for all the phenomena.

Dr. Foot was an advocate of the theory that the pigment was due to the oxidation of indican eliminated by the cutaneous glands; its preference for the face he explained by the free exposure of that area to the great oxidising influences of air, light, and heat. Some ferment also might operate in effecting the conversion of soluble colourless indican into indigo-blue or bronze. The possibility of a bacterial origin was not to be overlooked, as the source of the colour in "blue milk" was often the *B. cyanogenus* and in red sweating *Bacterium prodigiosum*. The indican he considered was derived from the absorption from the intestinal canal of small quantities of indol. The frequency of constipation in chromidrosis, the sudden disappearance of the colour after purgation, its diminution after regulation of the bowels, and the general aversion to animal food these cases exhibit, were, he considered, facts which made in the direction of this view. The proportion of indican in the urine increases, *pari passu*, with the amount of exudation on the face, and *vice versa*. Hoffmann has detected indigo in the bluish-black exudation, and after reducing the pigment to indigo-white it was seen to regain its colour by exposure to the air. Dr. Foot concluded his remarks with a variety of arguments and considerations in support of the reality of the affection.

MR. FRAZER said a lady from the North of Ireland, whom he had frequently seen, called upon him recently on her way home from Killarney, and directed attention to her eyelids, one of them being particularly dark. He thought it was likely to prove a case of chromidrosis.

DR. HAYES detailed his observations of a lady whom he knew for nine years, and who for the last five years has had a deposit of a black pigment round both eyes, extending into the eyebrows, enveloping the upper lids and the same distance of the lower, presenting all the appearances of a well-marked case of chromidrosis. He did not see her for some time

after the deposit was first observed. Hence he could not speak of its incipient stage. At present the pigment could be easily removed, and he had seen it reform again. The lady was of a highly nervous temperament, and had suffered from hysteria, and was also the subject of arrested phthisis. She consulted him first for a nervous affection of her throat, and Dr. Grimshaw had previously examined her, and pronounced her lungs not to be healthy. Since then he had himself examined her lungs, and found evidence of former disease. She had also had trouble from neuralgic pain and from an atrophic condition of her gums. Several of her teeth became useless. In 1882 she was suffering from uterine congestion, for which she consulted Dr. Kidd. Constipation was persistent. Besides the deposits of pigment round her eyes, she had others. Three years ago she had on her left arm a spot, which after remaining some months gradually disappeared. Within the last two or three months she had asked him pointedly if there was any danger of the spots becoming sore. He subsequently ascertained she had one on the calf of her right leg, and that an abscess had formed under the skin affected by the pigmentation. The abscess burst, and the pigmentation disappeared from the spot. After great persuasion he obtained recently a specimen of her morning urine, and he found in it distinct traces of indican. He had no doubt the disfigurement of her face was such that it was not the result of colouring done by herself, and he accordingly recommended her for treatment to the acknowledged authority on chromidrosis—namely, Dr. Foot; but she had not yet taken his advice.

MR. BORD said some years ago a young lady was brought under his notice by her mother. The young lady was dark and good-looking, and it struck him at the outset that she wanted to heighten the appearance of her eyes by means of some pigment applied to the lids, but her mother assured him there was no ground for the suspicion, and she herself also denied doing anything of the kind. He often wiped off some of the pigment with a towel, but could not get it all off. The family soon seemed to recognise the pigmentation as her normal state, and paid no attention to it. The lady got married, and he afterwards saw her in this country. The pigmentation had considerably disappeared, but portion still remained on the eyelids. Besides suffering from anæmia, the lady suffered also from obstinate constipation. He had no doubt the case was one of chromidrosis.

DR. PURSER said he had never seen a case of chromidrosis himself, but, authenticated as these cases were by Dr. Foot, who was admittedly the first living authority on the disease, it was impossible to suppose that all were simulated cases, especially as Dr. Foot had seen the colour coming out without the patient putting the hand to the face, or using any extraneous pigment. Hence they must admit there were genuine cases; but when they considered the ingenuity of young women in

deceiving doctors, a good many of the cases imperfectly observed may have been instances of deception. Admitting that some of the cases were genuine, it was to be regretted that Dr. Foot, and some other physicians who observed the pigment coming out, did not observe where it came from, by watching with a lens to see whether it was through the sweat glands, or how it diffused itself through the skin. But why the sweat glands should be affected in the face and in no other part of the body seemed anomalous, as not being a part of the body where these glands were very highly developed or prone to sweat; on the contrary, the sweat glands were rather small and scanty, and this was not a part which was devoid of sebaceous glands. There were plenty of sebaceous glands in the eyelids; the small hairs over the lids had all got sebaceous glands. So that it was not easy to understand how this could be an affection of the sweat glands. It was much more probable that it was a bacterial affection in which there were chromogenic bacteria, and the bacteria lying there simply acting on the superficial epidermis. As to the nature of the pigment, it ought to be easily settled, and would be very important to settle. It could be easily settled whether it was indigo or not—for instance, it could be easily washed off with chloroform, and its identity determined by means of the spectroscope. Obstruction by constipation did not produce indigo; neither indol in the large intestine nor indigo in the urine. The indol formed in the small intestine and circulated in the blood; and the urine became almost black when treated for indigo, although exposed to the air it would never change colour. Moreover it was necessary to break up the sulphuric acid compound before any oxidising agent would act on the indican. There were no agents that would act on the surface of the skin to break up that very staple compound. Two remarkable points in chromidrosis were—first, that it almost always affected the part exposed; and in the second place, that it should always occur in nervous young women.

DR. WALTER SMITH, accepting chromidrosis as a true pathological occurrence, regarded the question of its rarity as of secondary importance, and that the important question was the identity of the indigo. Dr. Foot's was an ingenious but an insufficient theory. In the terminology of the subject it was a pity that indican should be used in reference to the urine. It was not the same as the substance that occurred in plants—it was not identical with the indican of the indigo plant. Now, for three reasons the indigo theory was insufficient—first, the evidence connecting the blue coloration with metallic colours was vague and unsatisfactory, and the cases exhibited showed that the pigment was not only blue, but also brown, black, and yellow, necessitating, therefore, a further theory to explain these variations; secondly, chromidrosis was excessively rare; and thirdly, it appeared in very limited and

localised areas of the body. Hence if there was to be a theory, it was more likely to be sought successfully in some of those colour-producing bacteria, rather than in the formation of indigo in the urine.

DR. FOOT replied.—He said a great deal necessarily depended on the accuracy and skill of the observer, and, above all, his good faith. Many recorded cases of chromidrosis were rejected upon weighing the evidence in support of them; but the 46 which he had brought before the Section had run the gauntlet and stood the test of the keenest criticism. It was easy for Dr. Purser to say—"Watch with a lens to see where the pigment came from." If a young woman came to his house at 2 o'clock, and the colour did not appear till 7, how was he to stay watching her? The colour was observed in other parts of the body as well as on the face; but it specially affected the face and also the scrotum. There was a distinction drawn between animal and vegetable indigo. Many books spoke of an animal and of a vegetable indigo. He thought over the different colours, and in consultation with Dr. Emerson Reynolds, concluded that the deep black was an intensity of indigo brown; and sometimes it was of a brownish blue. There was a great deal to be said in favour of the bacterial origin; for instance, red sweat observed at the armpits after rowing was due to chromogenic bacteria. The other variations of colour were due to different grades of the indigo; and he was not, after all that had been said, prepared to give up the indican theory.

A Mixed Case of Typhus and Enteric Fever.

DR. C. J. NIXON read a paper on a case of mixed typhus and enteric fever, and exhibited the *post mortem* appearances of Peyer's patches.

MR. MOLONY asked was there a case of typhus fever in the ward, or was there evidence of the existence of typhus in the house from which the patient came, remarking that Murchison mentioned two cases of the co-existence of typhus and enteric fever, the typhus being, he seemed to think, a complication.

DR. JOHN WM. MOORE said he saw, on the 17th of October, 1888, in consultation, an officer, supposed to be on the sixth or seventh day of typhoid. The symptoms of typhoid which were present were tympanites and diarrhoea, but the case was more like typhus or acute pneumonia. Next morning the gentleman was covered with maculated eruption; and whether he had been in typhoid previously or not, it was evident he was then about the sixth day of typhus. Meanwhile the diarrhoea continued. At first the motions consisted largely of curdled milk, from having milk as food. In two or three days they became more liquid and of a bright colour. Symptoms of cardiac prostration showed. Resolved to have another opinion, they called in Dr. Gordon. Dr. Gordon stated forthwith there was little doubt he was on the ninth or tenth day of maculated typhus fever.

Two or three days passed, when the crisis took an ominous form—profuse perspiration appeared. The pulse rose, the mental state became rapidly deranged, the abdomen largely tympanitic, the patient's strength abated, and he passed into a state of coma; temperature, 105°. The forecast that the temperature would continue to rise was verified; the officer died at 11 o'clock at night on the eighteenth day. Whatever other fever he had, there was no doubt he had maculated typhus, although the spots gradually faded and were hardly perceptible at the time of death. There was no opportunity of making a *post mortem* examination. The diarrhoea was probably an early indication of nervous prostration. His explanation of the co-existence of the two fevers in the one patient was the greater receptivity of the poison of typhus in typhoid cases. He regarded Dr. Nixon's as a mixed case. There was a week's history before the typhus appeared, and the pathological conditions could not be connected with typhus, but were essentially those of typhoid fever.

MR. DELAHAYDE had had two cases in which typhoid and typhus co-existed in the same individual, and both terminated fatally. One was that of a young man who died the fifth day after the appearance of the typhus rash, and the other that of a young girl, aged twenty-five, who had typhoid first, and on the ninth day the typhus appeared, and she died three days afterwards of pneumonia.

MR. H. G. CROLY mentioned the case of a young gentleman at Monkstown, Co. Cork, who had had symptoms of typhoid, but afterwards the fever ran the course of typhus. In Dr. Nixon's case the cutaneous eruption on the face was remarkable. When connected with the Meath-street Dispensary, some years ago, he saw a great number of fever cases, but not one of typhus where there was rash on the face; and the late Sir Dominic Corrigan laid down that it never appeared on the face.

DR. NIXON, in reply, concurred with Mr. Croly as to the great rarity of typhus eruption on the face, and was mindful of Corrigan's observation that it never occurred. He brought forward the pathological specimens, anticipating some difference of opinion as to whether the intestinal lesions might be due to typhus or not; but he was glad to find no doubt existed as to the case being a mixed one.

The Section adjourned.

Friday, January 25, 1889.

DR. ARTHUR WYNNE FOOT in the Chair.

Note on an Improved Clinical Chart.

DR. R. GLASGOW PATTESON read a note descriptive of an extended clinical chart devised by himself.

their attachments, which disappeared ultimately, leaving the heart free from all traces of disease.

In his opinion there was not sufficient justification for the dogmatic assertion of some leading authorities on the subject of valvular diseases, that a chronic valvular affection associated with murmurs, once established, is never cured; and he gave three instances of cases under his own observation—one the murmur of mitral regurgitation, with consecutive changes in the left ventricle and auricle, which existed for two years, and ultimately disappeared, as did the hypertrophy associated with it; and two others of aortic regurgitation existing for a considerable period, which finally got quite well also. In both these latter cases the existence of hypertrophy and dilatation of the ventricle might be taken as sufficient evidence that they were both of a permanent nature, as also the length of time they continued after the primary endocarditis that produced them. Such disappearance he considered significant, as indicating that some cases of chronic valvular affections do ultimately get well; but in all those he met with as thus disappearing, they were cases of regurgitation of either the mitral or aortic orifice. A well-established constrictive murmur, in his opinion, never got well; it might disappear or cease to be heard, owing to failure or weakness of the cardiac wall, or excessive dilatation of either these or the aorta; but the symptoms associated with it remained, and *post mortem* evidence showed no cure.

The reason of this was obvious—the constrictive murmur was, sooner or later, the outcome of a lesion at an orifice producing, or permitting regurgitation, and when associated with deposition of inflammatory exudation on the valves, or their attachments, led to subsequent adhesion of them, or to contraction of the orifice they closed, and produced constriction.

There was good ground for the belief expressed by some that plastic material deposited on or in a valve may ultimately get absorbed when it only interfered with their adaptation, but when deposited around the margin of an orifice it must ultimately, by its contraction, cause obstruction.

Such absorption, he considered, was more likely to take place when the subjects were young, owing to the rapid metabolic changes which occur in their tissues, and to compensation being more easily established, and where the valvulitis was of rheumatic origin, than in cases where it was the result of alcoholism, gout, or contracted kidney—conditions which led to it later in life.

The CHAIRMAN observed that the paper was conversant particularly with the disappearance of organic murmurs, and therefore the subject of the disappearance of functional murmurs need not be discussed. The late Dr. Stokes had drawn attention to three conditions under which organic murmurs disappeared. One of these conditions was extreme

rapidity of the heart's action. Of course, it was open to say that that condition would obscure the means of detecting the murmur, but not cause it to disappear. Another condition was where the heart's action became too weak to make a murmur, the current of the blood not being driven forcibly enough to make itself heard. And the third condition was where the amount of disease itself became too extreme, particularly in respect of regurgitation of the aortic orifice, the blood slipping through quietly without a murmur. Then there was also the disappearance of mitral systolic murmur during acute rheumatism. It was, however, questionable whether many of these were organic murmurs at all, and several physicians held that they were functional murmurs and belonged to one of the numerous headings of such given in Dr. Hayden's book—for instance, muscular incompetency, due to the condition of the heart becoming impaired and the sphincter of the mitral foramen relaxed, and therefore a class of curable mitral murmurs that got well of themselves in convalescence. He was at a loss to understand how the murmurs disappeared in the case of the old gentleman of alcoholic habits, mentioned by the author of the paper, unless it was explained by the aggravation of the disease—a condition, however, which would be inconsistent with his apparent good health. An interesting addendum would be a record of the reappearance of the murmurs; for if they disappeared they were liable to reappear.

DR. WALTER G. SMITH said there was no doubt that a twenty years' retrospect of cardiac disease showed that the profession was getting instructed as time rolled on, not merely in the mechanical diagnosis of murmurs, which in the vast majority of cases was simple, but in what was more important—namely, the prognosis, which was the real keynote of the skilled physician. He recalled the impetus given by their late Master, Dr. Stokes, to the proper understanding and appreciation of the study of cardiac diseases, as being the first great man who taught the importance of not giving a hasty opinion, either in the matter of diagnosis or prognosis of cardiac diseases, and that a patient with the most serious signs of disease not only could live but did live for many years in undoubted health. Since Stokes' time many authorities had published abundant evidence in support of his views, and Mr. Boyd's paper was in the same direction. Assuming the diagnosis perfect of organic disease, there was no *à priori* probability that the organic valvular change might get well, and yet no one could prove it did not. Considerable organic changes occurred without any physical signs during life, as was proved by autopsies in fatal cases of chorea—no murmur observed, but the mitral valve was studded over with granulations of recent endocarditis. Now, in reference to the mechanism by which murmurs might get well, a murmur was merely an audible vibration of the blood-current, and must require certain physical conditions for its production. If the physical

conditions were no longer able to produce a whirlpool in the blood, notwithstanding the presence of organic disease, that particular evidence of organic disease called a murmur might be absent. It was therefore equivalent to saying that one of the symptoms of organic disease had disappeared, but that it was not equivalent to saying that the organic disease itself was cured. The physical conditions had so changed that the audible vibration of the blood-current was no longer produced. Whatever the cause of the disappearance, it was explicable on simply physical principles.

After some remarks on the paper by Mr. Doyle,

MR. BORD, in reply, concurred with the Chairman's observation that a number of the murmurs could be traced to functional causes, and said the object of his communication was to call attention to the fact that at least some of what they considered organic changes at the orifice indicated by murmurs might and did get better, and the murmurs disappeared. In the case of the old gentleman who had aortic regurgitating murmur, he could not explain satisfactorily to what it was due.

The Section adjourned.

SECTION OF OBSTETRICS.

President—W. J. SMYLY, M.D., F.K.Q.C.P.

Sectional Secretary—ANDREW J. HOKNE, F.K.Q.C.P.

Friday, February 1st, 1889.

The PRESIDENT in the Chair.

Exhibitions.

MR. O'CALLAGHAN exhibited a living specimen—viz., a case of *ectopia vesicis*—in an infant six months old. When he first saw the infant he found an opening below the umbilical region, through which a hernia protruded. This had been getting much larger during the last few months. When the infant was three months old he operated on the hernia, with the idea of covering over the exposed region of the bladder, but on the fourth day afterwards, through the repeated crying of the child, the stitches of the suture were burst. His object in showing the specimen was twofold. First, he desired to have the opinions of the members of the Section as to the sex of the child; and secondly, he wanted to find out whether any further operation was practicable, with a view to making the child comfortable, if possible, during the rest of its life, for at present it was in a sad state.

MR. O'CALLAGHAN showed an ovarian tumour. The girl from whom it was taken was sent to him by Dr. Kidd, of Tullow, who had recog-

nised it twelve months previously. She had been tapped seven times. The girl was sinking, and could hardly eat anything, and Dr. Kidd sent her to him. He decided to operate, and was happy to say that he had been able to do so most successfully. After each tapping there had been some slight peritonitis; and all round the places where the tapping was performed he found what appeared to be little miliary tubercles. There was some little difficulty in getting the tumour out; but the girl recovered from the operation and was now perfectly well. The two large lumps were papillomata. The case showed the utter uselessness of tapping. He believed that in numerous cases in which it was done the individuals either never reached an operation, or came under observation in an almost hopeless condition.

DR. MACAN exhibited a stone which he removed, some time ago, from the bladder of a woman, aged thirty-three, who had been nine years married, and had had five children. She was sent to the Rotunda Hospital for inflammation of the bladder; and on a bimanual examination he felt a stone in front of the uterus, and passed a sound which struck against it. At first he thought that it might be a piece of a catheter which had remained in the bladder, and had got caked round with salts of the urine. Believing that the proper way of getting a stone out of the bladder was by a vesico-vaginal fistula, he incised the bladder at the base, and twisted the stone until one end of it came to the orifice, and then he extracted it by the long axis. The lower end of it was tolerably smooth, but the upper side was quite rough; and he thought that it lay in the base of the bladder, and had been a good long time forming. When he first spoke to the woman, she said there must be something in her bladder, because when unable to pass water she had two or three times had a sensation as of something going into her urethra.

DR. ALFRED J. SMITH exhibited a foetus compressus which had been found lying in the membranes, along with another child which had reached its full term. The latter weighed seven pounds, and was quite healthy; but the foetus was extremely small, and evidently very young. There was no placenta or cord.

DR. MORE MADDEN exhibited a large ovarian tumour which he had removed from a patient, and who made a good recovery. He also exhibited a uterus which he removed, last Wednesday morning, from a woman who was four months pregnant. The operation was undertaken in consequence of the occurrence of very urgent symptoms of pain and pressure. On the abdominal cavity being laid open, they found three tumours, and were obliged to remove one in order to get at the others. The largest was the posterior one, was deeply imbedded in the pelvic cavity, and was with some difficulty dislodged. The surface of the uterus was covered over with a large number of fibromata in various stages of development. It being evident that these would grow and kill

the woman, they decided to remove the uterus, and at once did so. The operation was a rather protracted one, owing to the difficulty of arresting the hæmorrhage, in consequence of the uterine and ovarian vessels in the broad ligament being very much enlarged, and the structures of them in a friable and unhealthy condition, which made it very difficult to secure them. However, they did so, and then brought the ligatures out through a drainage tube inserted at the lower angle of the wound; and he was glad to say that up to that evening the woman had been going on well, although her condition was, of course, still extremely critical.

Amputation of Cervix Uteri in Treatment of Uterine Cancer and Cervical Injuries.

DR. MORE MADDEN read a communication on the above subject. [It will be found at page 202.]

The PRESIDENT said two questions were constantly coming under their notice. The first was whether malignant disease of the cervix was a local or a constitutional disease; and the second was whether infra-vaginal amputation was the best possible procedure in every case if removal of the entire uterus were useless. Another point of great physiological interest was as to the origin of malignant disease—whether it arose from the fibrous tissue or the epithelial structures; and there were also the questions as to whether benign inflammation could change into inflammation of a malignant character; as to the use of the ecraseur; and as to the best method of removing the diseased structure.

DR. BYRNE said that in most cases in which there was laceration he did not agree with Dr. More Madden as to the desirability of removing the cervix instead of performing Emmet's operation. In the cases which he had seen his experience was that the split in the cervix was generally bilateral (though in some cases it was of course stellate), and the effect of this was to produce eversion of the membrane described as the ectropion, which had given rise to ulcers of all kinds. He believed that the so-called ulceration of the os was in most cases eversion of the membrane. He did not agree with Dr. More Madden that in the majority of cases that came before them it was the best practice to remove the cervix by amputation. Emmet expressly laid it down as a distinct rule not to do so. With regard to the removal of the cervix for malignant disease, he quite agreed with Dr. More Madden that if it could be removed so much the better. If the hypertrophy of the cervix were attended with malignant symptoms they were bound to remove it. Then arose the question—What was the proper way to do it? In the incipient stages of cancer the disease, as a rule, presented itself under two conditions. First, if the woman were young they would have a prominent uterus and a large cervix, and they would be able to remove the cancerous mass. But where senile atrophy had taken place, in such a case it

was not very easy to remove any part of the uterus per vaginam. In any cases in which he removed the malignant portion of the cervix he generally did it with an *écraseur*, and the success attending the operation was not very well marked. After a year or so the disease returned and went on with greater rapidity. He had formed the opinion that in cases of malignant affection of the cervix the proper treatment would be to remove the contiguous parts.

DR. ATTHILL said that the paper of Dr. More Madden treated of two totally distinct subjects—namely, the treatment of malignant disease of the cervix, and the treatment of lacerations after parturition, and of hypertrophy the result of certain local conditions. His (Dr. Atthill's) memory had been recalled to a paper read by his friend, Dr. Marion Sims, who gave a vivid description of how he had cured a case of malignant disease by scooping out the uterus and afterwards packing it with a strong caustic solution. But he came to the conclusion that it was useless work. He followed a considerable number of cases that were operated on, during a period of from twelve to eighteen months, and they all collapsed and died. He doubted that cancer of the cervix was a local disease. He believed cancer to be a constitutional disease, which localised itself in the first instance, but if removed was certain to break out again. He therefore believed that removal of the cervix uteri for cancer was of very little value. A better chance would be given by the removal of the whole uterus; but the danger of that operation was so great, that he would be very sorry to advocate it. But if they did attempt to remove the cervix uteri, the *écraseur* was the handiest and easiest means of doing so. The dangers of the use of the *écraseur* were very real. In one of his own cases he applied it high up, and sucked in a portion of the peritoneal tissue. Dr. More Madden, as he understood, postponed amputation of the cervix as an alternative for Emmet's operation.

DR. MORE MADDEN—In cases of stellar laceration.

DR. ATTHILL said he considered that Emmet recommended his operation to be performed in a vastly unnecessary number of cases. He totally disbelieved that stellar laceration had anything to do with the origin of malignant disease. He did not think that cancerous disease occurred more frequently in women who had had laceration of the cervix than in any others. The conclusion remaining on his mind was that laceration of the cervix had very little to say to it. Emmet's operation was an excellent one in certain cases; but he could not think that amputation of the cervix, though an easy operation, was a satisfactory alternative. He amputated the cervix once or twice for great elongation in the cases of women of sedentary habits—dressmakers—in whom the cervix was so long as to reach the vulva; and the operation gave the patient great relief and comfort. But those cases were very few; and he would never

think of performing the operation as an alternative for the plastic operation advocated by Emmet.

DR. MASON said in a large number of cases the operation had only the effect of relieving the patient from pain, and prolonging life. He held that there were certain cases in which each of the operations in question was better than the other. For cancerous disease of the lower part of the cervix, simple amputation would cure the hæmorrhage, diminish the unhealthy discharge, and prolong life. But in cases where the disease extended high into the cervix, or into the body of the uterus, there was not the slightest use in the ordinary operation, no matter how it was carried out. In such a case the only question was whether or not the entire uterus should be removed, and the safest operation for that was a vaginal one. And before they attempted it they should be certain as to the amount of mobility of the uterus itself, for if there were any bands connecting the uterus closely with the pelvis, and probably infiltrated with cancer, there would be very little use in operating. But if the uterus were free from the pelvis and the surrounding tissues, and also free from disease, he believed entire extirpation of the organ to be the safest for the patient, and the most likely to be of permanent advantage to her. If it should not be justifiable to remove the entire organ they should resort to one of Dr. Marion Sims' operations, such as scraping away some of the tissues and taking out the slough with strong caustic solution. He had seen that done several times, and had seen a great deal more tissue taken out than they expected. He had seen an opening made into the bladder and rectum by the use of strong caustic solution, producing a slough. He would prefer scraping away as much of the diseased tissue as possible with a curette, and if any disease were left behind he would take it away by cautery. But as to packing the deep cavity of the uterus with a strong caustic solution, and trusting to luck for the amount of tissue that might come away, he thought that would not be an advisable course to resort to. As to amputation of the cervix, the *écraseur* left a large amount of tissue to heal by granulation, which was utterly unnecessary. The division of a portion of the cervix with the scissors, taking away as much tissue as possible, stitching the mucous surface over the wound, and preserving the cervical canal, he believed to be a much better operation, and one from which the patient would recover much more rapidly and with less disturbance. He performed it himself three times, and the patients all recovered, and were convalescent at the end of a week. As to cervical laceration, from what he had seen of it he could not imagine any laceration of the cervix that could not be dealt with by the plastic operation of Emmet. He thought it undesirable to advocate the removal of the cervix for laceration alone.

DR. MORE MADDEN, in reply, said the two subjects with which his paper dealt were really one. He admitted that amputation of the can-

cerous cervix was not an operation to be lightly resorted to. He would limit it to cases of disease in an incipient stage. At the last meeting of the old Obstetrical Society he read a paper on the treatment of laceration of the cervix by trachelorrhaphy, of the utility of which procedure he had had an extensive and favourable experience in appropriate instances, but at the same time he also believed the operation he now advocated to be a suitable alternative for it in certain cases, and in particular where cancer was likely to supervene.

The Section then adjourned.

SECTION OF STATE MEDICINE.

President—S. M. MACSWINEY, M.D., F.K.Q.C.P.

Sectional Secretary—E. MACDOWEL COSGRAVE, M.D., F.K.Q.C.P.

Friday, February 8, 1889.

The President in the Chair.

Isolation in Infectious Fevers.

The PRESIDENT read a paper on the above subject. [It will be found at page 193.]

DR. NINIAN FALKNER regarded the President's paper as teeming with points of interest to every practitioner engaged in public health work. He did not agree with Dr. Hilton Fagge's opinion on isolation in infectious fevers. Painful as the duty must necessarily be, he held that in the interests of the patient, as well as of the community at large, it was best to carry out to the letter of the law the powers of compulsory isolation in infectious diseases, even by removing an infant child attacked with scarlatina to hospital.

DR. WILLIAM MOORE was in favour of isolation up to a certain point—i.e., he would give every patient in the fever ward of an hospital 1,800 cubic feet of air space, thereby attaining as much isolation as would be required in a general hospital. He excepted, however, small-pox cases, holding, as he did, that putting small-pox patients into the wards of a general hospital was a crime. In illustration of the danger of this he recalled a case that occurred, some twenty years ago, of a small-pox patient having been put into a ward with some five other patients who could not have had more than 500 cubic feet of space about them. On examining the case his clinical clerk got ill with the smell, and in ten days he was down in small-pox. A girl who was recovering from enteric fever in a bed adjoining that of the small-pox patient also got small-pox. Thus those cases were distinctly traceable to the infection

of the small-pox case introduced into the ward. But given the conditions he had prescribed, of 1,750 to 1,800 cubic feet of air space, he could only mention one case in his experience of a patient who was convalescing from enteric fever catching typhus, and in that case the two beds occupied respectively by the patients suffering from typhoid and typhus were adjoining, though not close to each other. Having regard to the immunity in many other cases under the requisite conditions of air space, he did not, however, consider complete isolation necessary—in fact, he believed 1,800 cubic feet of space virtually afforded isolation. The advocates of complete isolation should not be unmindful of the fiscal difficulty in the way of hospitals being able to provide complete isolation.

DR. JOHN WILLIAM MOORE said it was essential, first of all, to understand clearly what was meant by isolation. Sending infectious cases indiscriminately into the same ward of a general hospital was in no sense isolation. He believed that proper isolation consisted in sending small-pox cases into wards exclusively for such cases, scarlet fever cases into scarlatinal wards, typhus cases into typhus wards, and so on in the instance of the other eruptive fevers. For the safety of the public health these diseases could be safely treated only in special epidemic hospitals standing on large areas of ground and divided into departments for the accommodation of three or four infectious diseases, each disease in a separate building. Cork-street Hospital was the only hospital in Dublin that fully satisfied these requirements, standing, as it did, on a site several acres in extent, and being divided into several separate blocks of buildings. To introduce a scarlatinal patient into a ward with typhus fever at the end of the nineteenth century was reverting to the medicine of the Middle Ages. No doubt, in the hospital to which Dr. Wm. Moore referred, the air space was considerable, and the probability was that, under the conditions Dr. Moore had mentioned, typhus would not spread: but no such probability of safety could be predicated in respect of scarlatina. The opinion of the late Dr. Hilton Fagge he could not understand at all, and in contradistinction to that opinion he cited the address of Dr. Thorne-Thorne, one of the Inspectors of the Local Government Board for England, which he delivered as President of the Epidemiological Society of London on the progress of Preventive Medicine during the Victorian era, as vindicating, in a masterly way, the great advantages of isolation in infectious diseases by diminishing the prevalence and fatality of epidemics. Having been one of the Physicians of Cork-street Fever Hospital himself for many years, he testified to the exemption there from the spread of disease, thanks to the conditions of isolation adopted, disease spreading to patients convalescing from another type of fever only rarely, and then through accident. But with due respect to the memory of Dr. Hilton Fagge and his opinion that the seeds of disease would come up true, it

was notorious that the mildest cases of scarlatina had often originated the most malignant, and that children who had it in the mildest form, so that they ran about the street during its course, might communicate malignant scarlatina to dozens of other children. It was most unscientific, therefore, to say that every precaution need not be adopted. He alluded to the singular immunity to the poisons of measles, and particularly of scarlatina, enjoyed by infants at the breast. He had himself seen a case of a child, two or three months old, whose mother, when ill with scarlatina, asked him whether she was to send the child away or continue nursing it. Having ascertained that she had milk enough, he said: "By all means nurse your child." The experiment was a complete success. A strong expression of opinion should go forth from the Academy of Medicine that the time had come when the safety of the public health demanded that general hospitals should close their wards against infectious cases, and also that complete isolation in such cases should be adopted. But it was not sufficient to isolate the sick. Those recovering from infectious disease should be also isolated from the healthy; for in many instances it was in the convalescing stage that the infecting power of the sick was most marked, and that the scarlatinal patient was most likely to do mischief. Therefore convalescent homes were required in addition to special hospitals. A third desideratum was the provision of Refuges, as contemplated by the Public Health Act, for the reception of families whilst measures of disinfection were being carried out in their dwellings.

MR. DELAHAYDE concurred with Dr. Falkiner that it was absolutely necessary, for the benefit of the community, to remove children suffering from infectious disease to hospital, for he had seen infectious disease originate from children. He regretted that there was no hospital, properly so-called, in Dublin for the reception of children suffering from infectious disease, and that in the larger hospitals there was not proper provision for the nursing of children. He was greatly impressed with the necessity for isolation.

DR. BEWLEY, while agreeing in the main with Dr. John William Moore, pointed out the difficulty in the way of medical education which a special fever hospital must entail as regards the compulsory attendance of students once the fever hospital was removed altogether from the general hospital. Hence medical education must suffer, and students would hardly be able to diagnosticate a case of measles from scarlatina. He did not think three months' hospital attendance sufficed to educate a student in the diagnosis and treatment of fever. He approved of the desirability of providing a convalescent home in the interest rather of private than of hospital patients, and he believed such a home would pay.

DR. DONNELLY believed in the necessity of having separate wards for

the various infectious diseases, and of a convalescent home afterwards, but he also concurred in the desirability, for teaching purposes, of having a fever hospital attached to, but situated apart from, a general hospital. Sending patients—even children—to hospital was a great advantage, and to facilitate compliance he would send both mother and child. He believed thoroughly in isolation and disinfection. In private cases there was an objection to sending the patients to hospital, and unpleasantness and a consequent change of medical attendants often arose. To meet this difficulty he would give fair remuneration to the medical attendant for certifying the existence of the infectious disease, and he would make it compulsory on him to certify. Therefore he advocated compulsory notification of infectious disease, and the sending into hospital of all infectious cases—even then isolation—and next, in the convalescing stage, a convalescent home, to prevent the patients' return to the general community until perfectly safe to mix with the world again.

MR. DOYLE agreed with Dr. J. W. Moore as to the necessity of isolation in hospitals in the manner described, and also as to the necessity of safeguarding the community at large from patients in the convalescing stage. He thought that Dr. Bewley had lost sight of the permanent object of hospitals as being for the benefit of the individual patients before all other considerations; medical education being, therefore, of secondary importance. If the two objects could be combined—namely, isolation and education—he would be inclined to agree with him; but he felt that any student anxious to learn his profession would not be deterred by the removal of the infectious fevers from the general to a special hospital—an arrangement which also suggested educational advantages. In legislating for the benefit of the poor, the rich should not be lost sight of, even though the result affected the pocket of the medical practitioner as regards the profit of treating rich patients at home. In aristocratic localities, when infectious disease broke out, as it often did, the residents were as badly off for want of the advantages of isolation as the denizens of the poorest slums in Dublin. He accordingly emphasised the necessity of applying the law for the prevention of disease to the rich and poor alike, however disagreeable the restrictions of isolation.

MR. COX concurred with Mr. Doyle both as to the desirability of equality in the administration of the Public Health Act, and also as regards the primary object of hospitals being for the people who came to be cured, medical education being the next consideration. He also concurred with Dr. John William Moore as to the necessity of having separate hospitals for the treatment of infectious diseases. Cork-street Hospital was the best example in Dublin of an hospital suited for the treatment of infectious diseases, being admirably arranged with separate wards for the treatment of the different types of infectious disease, and thereby effecting complete isolation and preventing—what had often occurred under

other conditions where scarlatina, measles and typhus cases were huddled together in the same ward—typhus supervening on typhoid. Hence with all due respect to the arrangements of the Mater Misericordiæ Hospital, he thought it was necessary to have an hospital on the plan of Cork-street at the north side of Dublin; and failing that, he should regret the extinction of the Hardwicke as holding an intermediate place between the grouping together of general hospitals and the isolation plan of which Cork-street Hospital was the example. The hospital with which he was connected received typhoid cases, but no cases of infective fevers, and therefore certificates of attendance on fever cases could not be given to the students, who were accordingly free to attend fever cases where they pleased. Despite this drawback, of having to go elsewhere for attendance on fever, the students attended in satisfactory numbers. He would recommend that other general hospitals should do likewise, and lop off the fever wards, as it was practically impossible, in a general hospital, to enforce the precautions necessary to guard against the spread of infection. He endorsed Dr. Donnelly's remarks on the necessity of compulsory notification, and that, too, whether the practitioner was paid or not. The medical attendant should be bound, under penalty, to make return; and if he did not, the exposure following the imposition of a fine would soon put an end to improper practice.

MR. R. MONTGOMERY thought that physicians should dispel the idea of fear from the minds of students in attending fever cases. In his day he never heard of students being afraid to enter the fever wards.

DR. FINNY said the question the physician in private practice had to ask himself often arose—namely, what was his duty in a case of infectious disease in a family? With all respect to Dr. Wm. Moore's opinion as regards the safety of 1,800 cubic feet of space, he considered it the duty of a physician to use his best efforts to separate the fever patient from every other member of the family. Among the rich this could be done by shutting off the sick room from the other portions of the house. In his experience, with great care and using due precautions, isolation could be successfully effected in a private family. It was extremely hard to separate a mother from her sick child, and in such circumstances he required that the mother should either devote herself entirely to the sick room and act as a paid nurse would, or give up the child altogether to a skilled nurse. He thought as regards fever patients in general hospitals there was more danger in visitors spreading disease than the patients themselves, and that as regards fever patients spreading the disease among themselves the danger had been rather magnified. Since the adoption of the rule in Sir Patrick Dun's Hospital that no fever patient should be visited while in an infective condition, there had been no instance of the spread of disease from one patient to another, or from one part of the building to another. This was a fact that should

be borne in mind, having regard to the extreme views expressed by Dr. J. W. Moore. At the same time, it was the duty of every physician to advocate the isolation of infectious disease.

The PRESIDENT, in reply, said it was most important, valuable, and instructive, that the subject of isolation in infectious diseases had been definitely pronounced upon by the representative physicians of Dublin in a manner which admitted of no mistake or doubt. While it was natural that minor differences of opinion should be expressed on the details of the treatment, there was an unbroken unanimity of opinion that isolation was absolutely necessary, and that isolation should be thoroughly carried out in the case of every person, young and old alike, affected with infectious disease.

SECTION OF PATHOLOGY.

President—J. MAGKE FINNY, M.D.

Sectional Secretary—J. B. STORY, F.R.C.S.L

Friday, February 15, 1889.

The PRESIDENT in the Chair.

Case of Leprosy.

DR. O'CARROLL showed a case of leprosy. The disease had first shown itself in Hong Kong twenty-two years ago; but the patient, an Irishman, had previously been in India and the Cape. The disease was of the mixed form. The eruptions were distinguishable into primary and secondary ones—the former being tubercular and macular, and more or less generally distributed over the head, trunk, and upper part of the limbs; the latter bullous or pemphygoid in character, and affecting only the peripheral distribution of the ulnar and external popliteal nerves. Similarly an ulceration of the palate was pointed out as an example of a primary or specific lesion, while a caries of some bones of the feet was suggested as being secondary and analogous to the “perforating ulcer” of tabes dorsalis. This division of the more prominent phenomena into specific and secondary was further supported by a series of examinations for the specific bacillus lepræ, for which, however, Dr. O'Carroll did not yet claim the authority of completeness. The more general interest of the case lay in the fact that the disease had been established for so long a period without any marked mental or physical failure other than inability to get about briskly on account of the chronic caries in one or other foot, and the manual awkwardness due to the clawed condition of his hands.

MR. FRAZER stated that leprosy must have been common in Dublin in former times, as was proved by the number of leper hospitals that once

existed; and, as a rule, these were all outside the old city. Old Mercer's Hospital was used for a leper hospital, and Lazar Hill, often called "Lazy Hill," was a place where the Lazarists used to attend persons suffering from the disease. Outside the city walls towards Kilmainham there was a colony of those unfortunate people; and the city guardians were punished severely if they allowed them into the city.

DR. PATTESON said in the serum taken from the sinus of the foot he found an enormous number of bacilli. He had no doubt that the leprous lesions of the bone were due to infection by bacilli.

DR. DONNELLY said he had the idea that there was some connection between leprosy and syphilis. The history of the present case evidenced appearances like those of a bad, though not an extraordinary, form of syphilis.

DR. MYLES said there was a small lake in New Zealand round which, even at the time when Captain Cook first discovered the islands, leprosy prevailed amongst the population. The natives attributed the disease to their eating a peculiar kind of fish which was only to be found in that lake; and the disease never spread beyond the borders of the lake.

DR. M'KEE said the test as to whether this was a case of leprosy or not was the presence of bacilli. In syphilis, bacilli were not found at all, or with the greatest difficulty. The question of placing the necrosis of the bone amongst the essential instead of the secondary characteristics, depended on whether the skin was free from that infiltration or not. If there was skin infiltration, the bone lesion could not be deemed with certainty to be of an essential nature.

DR. O'CARROLL, in reply, observed that the skin of the foot was intact, and that predisposed him to believe that the bacilli must have come from some deep source, such as the carious broken-down bone. As to the identity of leprosy with syphilis, if that were so, he granted at once that the present was a case of that form of syphilis which had hitherto been called leprosy.

Fibromatous Growth Removed from the Skin.

MR. STORY read a paper by Mr. Wheeler (who was unable to be present) on a fibromatous growth which had been removed from the skin below the mamma of a middle-aged woman.

DR. GRAVES said the specimen was a very rare one. He suspected that it was a neuro-fibroma, although he was not yet able to prove it.

Exhibitions.

MR. R. N. TOBIN exhibited a specimen of knee-joint after resection, and also a specimen of male urinary apparatus after a long-continued stricture.

The Section adjourned.

CLINICAL RECORDS.

A Case of Diphtheria. Reported by ALFRED F. PENNY.

THE following notes I have taken on a case of diphtheria which was recently under the care of Dr. Corley at the Richmond Hospital, Dublin:—

On Friday night, Nov. 30th, 1888, about 11 30 o'clock, a little girl named Maggie Thompson, aged eight years, was brought to the Richmond Hospital by her mother, suffering from diphtheria. The Resident on duty, who was the first to see her, found her in a condition bordering on suffocation, suffering from intense prostration, aphonia, severe inspiratory dyspnœa, and well-marked substernal pitting. The tongue was large, covered with a whitish fur, and a distinct false membrane could be seen on the palate, pharynx, and fauces, which, judging from the dyspnœa, had evidently spread down into the larynx and trachea. She had also a very frequent pulse, an extremely bad smell from the breath, and, judging by her expression, appeared to be suffering great distress. Owing to the critical condition of the patient, and taking into consideration the imminent danger of death by suffocation, it was determined, subject to the consent of the child's parents, if necessary to perform tracheotomy, and she was at once admitted into hospital. On admission her throat was poulticed, an emetic of ipecacuanha wine was administered, and the throat was sprayed occasionally with lime water. A tent composed of a few sheets was also constructed over the bed, and the air rendered moist by steam from a bronchitis kettle. After vomiting had supervened, the patient's breathing became slightly better, but there was still well-marked inspiratory dyspnœa and substernal pitting; and as it was very evident that unless some improvement took place it would be imperative to resort to operative measures, everything that was necessary was prepared beforehand in case such an emergency should arise. About 3 o'clock a.m. the Resident on duty retired to bed, the nurse having been previously instructed to immediately call the house surgeon should she notice signs of suffocation in the child. In accordance with her instructions the nurse carefully watched the child, and a little after eight o'clock in the morning, observing that the patient was rapidly becoming asphyxiated, immediately called the house surgeon, Dr. Nash, and the resident pupils. Owing to the critical condition of the patient, being almost in the last stage of asphyxia, and her radial pulse having completely disappeared,

it was apparent that the only chance of saving her life lay in the immediate performance of tracheotomy, and she was quickly placed on the table, the shoulders being raised and the head and neck well thrown back. Dr. Nash then made an incision extending from the crico-thyroid membrane downwards for about an inch and a half, carefully avoiding the anterior jugular vein, and keeping well in the middle line. The deep fascia was then opened, and the fascial septum between the sterno-hyoid muscles exposed. About this point some venous hæmorrhage took place, which was easily stopped with a catch forceps, and the septum between the sterno-hyoid muscles being incised, the muscles were held apart. The loose connective tissue covering the isthmus of the thyroid was now seen and divided, and the isthmus drawn down with a blunt hook, the trachea being then easily exposed. At this stage of the proceedings the visiting surgeon, Dr. Corley, arrived and completed the operation.

Having steadied the trachea by sticking a small sharp hook into its front surface, it was now carefully opened, and the cricoid cartilage cut, the edges of the wound being held apart. Immediately the opening was made, the trachea, which was almost choked up with pus and false membrane, was cleaned out, a few bits of the membrane taken away, and a modification of Fuller's bivalve canula was inserted. At the same time the child became immensely relieved, the lungs commenced to expand freely, the pulse returned, and the expression of the child's face indicated the comfort it experienced in being able to breathe freely. Nearly the whole operation, with the exception of opening the trachea, was performed by Dr. Nash, and performed, too, under very unfavourable circumstances.

After the operation the patient was kept in a separate room, and the canula, which showed a tendency to become plugged with the secretion, kept clear with a feather. Dr. Corley, later on, examined the lungs, and found them both quite clear, and as the breathing was good, the case appeared to be progressing very favourably. Towards evening, however, the patient lost ground very considerably; paralysis of the muscles of deglutition set in, the respirations became more frequent, the pulse small, quick, and irregular, and the extremities got very cold. At half-past one o'clock the following morning the pulse had completely gone, and the paralysis had spread to the muscles of the neck, and at five o'clock that morning the patient died from asthenia.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. MOORE, B.A., M.D., Univ. Dubl.; F.K.Q.C.P.;
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VITAL STATISTICS

For four Weeks ending Saturday, January 26, 1889.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

Towns	Weeks ending				Towns	Weeks ending			
	Jan. 5.	Jan. 12.	Jan. 19.	Jan. 26.		Jan. 5.	Jan. 12.	Jan. 19.	Jan. 26.
Armagh -	46·5	31·0	41·3	15·5	Limerick -	29·7	44·5	28·3	27·0
Belfast -	24·8	31·6	31·3	31·8	Lisburn -	14·5	14·5	33·8	24·2
Cork -	27·3	38·9	40·9	47·4	Londonderry	19·6	16·0	28·5	26·7
Drogheda	8·5	25·4	16·9	16·9	Lurgan -	25·7	10·3	15·4	61·6
Dublin -	30·1	29·7	30·7	26·7	Newry -	7·0	24·6	14·0	14·0
Dundalk -	34·9	21·8	43·6	30·6	Sligo -	9·6	4·8	4·8	28·9
Galway -	23·5	23·5	10·1	16·8	Waterford -	39·4	25·5	16·2	25·5
Kilkenny	0·0	25·4	33·8	16·9	Wexford -	12·8	25·7	25·7	4·3

In the week ending Saturday, January 5, 1889, the mortality in twenty-eight large English towns, including London (in which the rate was 21·4), was equal to an average annual death-rate of 22·7 per 1,000 persons living. The average rate for eight principal towns of Scotland was 23·6 per 1,000, the rate for Glasgow being 28·4, and that for Edinburgh being 16·8.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 26·6 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·3 per 1,000, the rates varying from 0·0 in nine of the districts to 10·3 in Armagh. The 9 deaths from all causes registered in that district comprise 2 from measles (which caused 4 of the deaths registered in Armagh during the preceding week), and 1 from diphtheria. Among the 109 deaths from all causes registered in

Belfast are 2 from scarlatina, 1 from enteric fever, and 5 from diarrhoea. The 42 deaths in Cork comprise 1 from scarlatina, 6 from whooping-cough, and 1 from diarrhoea. Among the 22 deaths in Limerick are 4 from scarlatina and 2 from typhus; and the 11 deaths in Londonderry comprise 1 each from measles and enteric fever.

In the Dublin Registration District the births registered during the week amounted to 232—109 boys and 123 girls; and the deaths to 212—91 males and 121 females.

The deaths represent an annual rate of mortality of 31·3 in every 1,000 of the estimated population, being 2·8 below the mean rate for the first week of the last ten years. Omitting the deaths (eight in number) of persons admitted into public institutions from localities outside the district, the rate was 30·1 per 1,000.

Only 12 deaths from zymotic diseases were registered, being 4 under the number for the preceding week, and 19 below the average for the first week of the last ten years. They consist of 1 from measles, 1 from scarlet fever (scarlatina), 5 from whooping-cough, and 5 from enteric fever.

Seventeen cases of enteric fever were admitted to hospital during the week, being equal to the admissions for the preceding week. Fourteen enteric fever patients were discharged during the week, 1 died, and 66 remained under treatment on Saturday, being 2 over the number in hospital on Saturday, December 29, 1888.

Eight cases of typhus and 6 of scarlatina were admitted, against 1 case of the former and 8 cases of the latter disease admitted during the preceding week. Eleven cases of typhus and 34 of scarlatina remained under treatment in hospital on Saturday.

Forty-three deaths from diseases of the respiratory system were registered, being 8 over the number for the preceding week, but 19 under the average for the 1st week of the last ten years. They comprise 28 from bronchitis and 8 from pneumonia or inflammation of the lungs.

In the week ending Saturday, January 12, the mortality in twenty-eight large English towns, including London (in which the rate was 24·9), was equal to an average annual death-rate of 25·5 per 1,000 persons living. The average rate for eight principal towns of Scotland was 24·1 per 1,000, the rate for Glasgow being 28·9, and that for Edinburgh being 21·4.

The average annual death-rate in the sixteen principal town districts of Ireland was 30·0 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·7 per 1,000, the rates varying from 0·0 in Londonderry, Waterford, Galway, Kilkenny, Drogheda, Sligo, and Lurgan, to 15·5 in Armagh. The 6 deaths from all causes registered in

the last-named district comprise 3 from measles. Among the 139 deaths from all causes registered in Belfast are 2 from whooping-cough, 1 from diphtheria, 1 from simple-continued fever, 1 from enteric fever, and 3 from diarrhoea. The 60 deaths in Cork comprise 1 from scarlatina, 6 from whooping-cough, 1 from enteric fever, and 1 from diarrhoea. Among the 33 deaths in Limerick are 1 from scarlatina, 1 from typhus, and 2 from diarrhoea; and the 5 deaths in Dundalk comprise 2 from scarlatina.

In the Dublin Registration District the births registered during the week amounted to 195—94 boys and 101 girls; and the deaths to 204—96 males and 108 females.

The deaths, which were 23 below the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 30·1 in every 1,000 of the estimated population. Omitting the deaths of persons (3 in number) admitted into public institutions from localities outside the district, the rate was 29·7 per 1,000. During the first two weeks of the current year the death-rate averaged 30·7, and was 3·2 below the mean rate in the corresponding periods of the ten years 1879–88.

Eighteen deaths from zymotic diseases were registered, being 6 over the low number for the preceding week, but 17 below the average for the 2nd week of the last ten years. They comprise 3 from measles, 3 from scarlet fever (scarlatina), 1 from typhus, 3 from whooping-cough, 1 from ill-defined fever, 2 from enteric fever, 3 from diarrhoea, &c.

In each of the two weeks preceding, 17 cases of enteric fever were admitted to hospital; this week the admissions fell to 9. Six enteric fever patients were discharged during the week, and 69 remained under treatment on Saturday, being 3 over the number in hospital on Saturday, January 5.

Ten cases of scarlatina were admitted to hospital, being 4 over the admissions for the preceding week. Four patients were discharged during the week, 1 died, and 39 remained under treatment on Saturday, being 5 over the number in hospital at the close of the preceding week.

Only 1 case of typhus was admitted against 8 admissions during the preceding week; 11 cases of this disease remained under treatment in hospital on Saturday.

Sixty-three deaths from diseases of the respiratory system were registered, being 5 over the average for the corresponding week of the last ten years, and 20 over the number for the week ended January 5. They comprise 49 from bronchitis and 11 from pneumonia or inflammation of the lungs.

In the week ending Saturday, January 19, the mortality in twenty-eight large English towns, including London (in which the rate was 21·2), was equal to an average annual death-rate of 21·9 per 1,000 persons living. The average rate for eight principal towns of Scotland was

22.0 per 1,000, the rate for Glasgow being 26.7, and that for Edinburgh being 17.9.

The average annual death-rate represented by the deaths registered last week in the sixteen principal town districts of Ireland was 30.3 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1.7 per 1,000, the rates varying from 0.0 in ten of the districts to 5.8 in Cork—the 63 deaths from all causes registered in that district comprise 7 from whooping-cough, 1 from diphtheria, and 1 from diarrhoea. Among the 138 deaths from all causes registered in Belfast are 1 each from measles, typhus, diphtheria, and enteric fever, and 3 from diarrhoea.

In the Dublin Registration District the births registered during the week amounted to 187—105 boys and 82 girls; and the deaths to 213—107 males and 106 females.

The deaths, which were 14 below the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 31.5 in every 1,000 of the estimated population. Omitting the deaths (5 in number) of persons admitted into public institutions from localities outside the district, the rate was 30.7 per 1,000. During the first three weeks of the current year the death-rate averaged 31.0, and was 2.9 below the mean rate in the corresponding periods of the ten years, 1879–88.

The number of deaths from zymotic diseases registered is 13, being 5 under the number for the preceding week, and 21 below the average for the third week of the last ten years. They comprise 3 from scarlet fever (scarlatina), 3 from whooping-cough, 3 from enteric fever, 1 from diarrhoea, &c.

Seventeen cases of enteric fever were admitted to hospital, being 8 over the admissions for the preceding week, and equal to the number for the week ended January 5. Nineteen enteric fever patients were discharged during the week, 1 died, and 66 remained under treatment on Saturday, being 8 under the number in hospital on Saturday, January 12.

Seven cases of typhus and 8 of scarlatina were admitted to hospital against 1 case of the former and 10 cases of the latter disease admitted during the preceding week. Fourteen cases of typhus and 42 of scarlatina remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered is 58, being 2 below the average for the corresponding week of the last ten years, and 5 under the number for the week ended January 12. The 58 deaths comprise 38 from bronchitis, and 14 from pneumonia or inflammation of the lungs.

In the week ending Saturday, January 26, the mortality in twenty-eight large English towns, including London (in which the rate was

19·4), was equal to an average annual death-rate of 20·6 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·0 per 1,000, the rate for Glasgow being 25·1, and that for Edinburgh being 18·3.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 29·3 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·0 per 1,000, the rates varying from 0·0 in eight of the districts to 5·8 in Cork. The 73 deaths from all causes registered in the last-named district comprise 1 from measles, 5 from whooping-cough, 1 from simple continued fever, and 2 from diarrhœa. Among the 140 deaths from all causes registered in Belfast are 1 from scarlatina, 1 from whooping-cough, 2 from diphtheria, and 4 from diarrhœa; and the 20 deaths in Limerick comprise 2 from scarlatina.

In the Dublin Registration District the births registered during the week amounted to 202—97 boys and 105 girls; and the deaths to 186—91 males and 95 females.

The deaths, which were 52 below the average for the corresponding week of the last ten years, represent an annual rate of mortality of 27·5 in every 1,000 of the estimated population. Omitting the deaths (5 in number) of persons admitted into public institutions from localities outside the district, the rate was 26·7 per 1,000. During the first four weeks of the current year the death-rate averaged 30·1, and was 4·2 below the mean rate in the corresponding periods of the ten years, 1879—88.

Seventeen deaths from zymotic diseases were registered, being 4 over the number for the preceding week, but 17 under the average for the 4th week of the last ten years. They comprise 1 from measles, 3 from scarlet fever (scarlatina), 4 from whooping-cough, 2 from enteric fever, 1 from diarrhœa, 2 from erysipelas, &c.

Only 3 cases of enteric fever were admitted to hospital, being 14 under the admissions for the preceding week, and 6 under the number for the week ended January 12. Seven enteric fever patients were discharged. 1 died, and 61 remained under treatment on Saturday, being 5 under the number in hospital on Saturday, January 19.

Nine cases of scarlatina were admitted to hospital against 8 for the preceding week, but the number of admissions of typhus cases declined from 7 to 4. Forty cases of scarlatina and 14 of typhus remained under treatment in hospital on Saturday.

Sixty deaths from diseases of the respiratory system were registered, being 2 over the number for the preceding week, but 7 under the average for the 4th week of the last ten years. They comprise 42 from bronchitis and 11 from pneumonia or inflammation of the lungs.

METEOROLOGY.

*Abstract of Observations made in the City of Dublin, Lat. 53° 20' N.
Long. 6° 15' W., for the Month of January, 1889.*

Mean Height of Barometer,	-	-	-	30.150 inches.
Maximal Height of Barometer (on 3rd, at 9 a.m.),				30.711 „
Minimal Height of Barometer (on 9th, at 3 p.m.),				29.200 „
Mean Dry-bulb Temperature,	-	-	-	41.9°.
Mean Wet-bulb Temperature,	-	-	-	40.5°.
Mean Dew-point Temperature,	-	-	-	38.7°.
Mean Elastic Force (Tension) of Aqueous Vapour,	-			.238 inch.
Mean Humidity,	-	-	-	89.0 per cent.
Highest Temperature in Shade (on 18th),	-			56.2°.
Lowest Temperature in Shade (on 3rd),	-			27.1°.
Lowest Temperature on Grass (Radiation) (on 3rd),	-			22.7°
Mean Amount of Cloud,	-	-	-	69.4 per cent.
Rainfall (on 16 days),	-	-	-	2.213 inches.
Greatest Daily Rainfall (on 11th),	-	-	-	1.221 inches.
General Directions of Wind,	-	-	-	W., S., N.W.

Remarks.

As happened also in January, 1888, during the greater part of the month, the weather was open although changeable in Ireland and in Scotland, colder in England, and very cold in France and Germany. The type of distribution of atmospherical pressure was chiefly anticyclonic in the south and south-east, cyclonic in the far north and north-west.

In Dublin the mean temperature (42.4°) was perceptibly above the average (41.3°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 41.9°. In the twenty-four years ending with 1888, January was coldest in 1881 (M. T. = 32.2°) and warmest in 1875 (M. T. = 46.6°). In 1867, the M. T. was 35.7°, and in 1865 it was 37.8°. In 1871 and in 1886, the M. T. was 37.9; in the year 1879 (the cold year), it was 35.3°. In 1888, the M. T. was 42.1°. As a general rule, January in Dublin is not colder, but rather a shade warmer, than December. This is owing to the full development in January of a winter area of low pressure over the Atlantic, to the north-westward of the British Isles, and to a resulting prevalence of S.W. winds in their vicinity. January, 1889, proved an exception to this rule, the M. T. being 1.2° below that of December, 1888 (43.6°).

The mean height of the barometer was 30.150 inches, or as much as 0.269 inch above the average value for January—namely, 29.881 inches. The mercury rose to 30.711 inches at 9 a.m. of the 3rd, and fell to 29.200 inches at 3 p.m. of the 9th. The observed range of atmospherical

pressure was, therefore, as much as 1·511 inches—that is, a little over one inch and one-half. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 41·9°, or 1·4° below the value for December, 1888; that calculated by Kaemtz's formula—viz., $\text{min.} + (\text{max.} - \text{min.} \times \cdot 41) = \text{Mean Temp.}$ —from the means of the daily maxima and minima was 41·6°, or 0·8° above the average mean temperature for January, calculated in the same way, in the twenty years, 1865–84, inclusive (40·8°). The arithmetical mean of the maximal and minimal readings was 42·4°, compared with a 23 years' average of 41·3°. On the 18th, the thermometer in the screen rose to 56·2°—wind W.S.W.; on the 3rd, the temperature fell to 27·1°—wind also W.S.W. The minimum on the grass was 22·7° on the same date. The rainfall was 2·213 inches, distributed over 16 days. The average rainfall for January in the twenty-three years, 1865–87, inclusive, was 2·241 inches, and the average number of rainy days was 17·7. The rainfall and the rainy days, therefore, were both slightly below the average. In 1877 the rainfall in January was very large—4·322 inches on 25 days; in 1869 also 4·258 inches fell—on, however, only 18 days. On the other hand, in 1876, only ·406 of an inch was measured on but 9 days; and in 1880, the rainfall was only ·563 of an inch on but 8 days. In January, 1886, 3·244 inches of rain were measured on as many as 26 days, in 1887 (the dry year) 1·816 inches fell on 16 days, and in 1888 1·247 inches fell on 9 days.

A lunar halo was seen on the 14th. The atmosphere was foggy on each of the first six days, as also on the 22nd. High winds were noted on 8 days, reaching the force of a gale on two days—the 11th and 18th. Hail fell on the 9th and 11th, and snow or sleet also on the 11th. Temperature exceeded 50° in the screen on 8 days, compared with 10 days in December, 1888; while it fell to or below 32° in the screen on only 3 nights, compared with 5 nights in December. The minima on the grass were 32°, or less, on 16 nights, compared with 20 nights in December.

Cold, quiet, foggy weather prevailed during the greater part of the week ended January 5th, 1889, in the centre and east of Ireland, as well as in England. In the west of Ireland and in Scotland S.W. winds and cloudy, mild weather were experienced. From Tuesday, the 1st, to the close of the week a band of high atmospherical pressure extended from North Germany across England and Ireland, while the barometer was low over the Norwegian Sea and Scandinavia in the north and over the Mediterranean in the south. Sharp frosts prevailed within the area of high pressure, but it was very mild on the Atlantic coasts of Ireland, Scotland, and Norway. In Dublin the barometer rose to 30·711 inches at 9 a.m. of Thursday, the 3rd (wind W.S.W.). Thick rime formed on Friday and Saturday. Fogs were observed on each day, Tuesday to Saturday. Rain fell on Saturday night to the amount of ·021 inch.

As regards the second week (6th–12th inclusive), except on Thursday, the 10th, which was a fine, dry, bracing day, the weather was either cloudy and damp, or rainy. At the beginning of the week intense frost prevailed in central and eastern England—at 8 a.m. of Sunday, the 6th, the thermometer read 15° at Cambridge, 21° at Loughborough, and 22° in London. This was a dull, damp, foggy day in Dublin. Gradients for southerly winds became pronounced over Western Europe, temperature rose and rain fell very generally. On Wednesday the wind shifted to W. and N.W. in Ireland with a downpour of rain and hail and an abrupt fall of temperature. On Friday afternoon there was a S.E. gale, and immense quantities of rain, hail, and sleet fell in Dublin and its vicinity. Saturday was a dull day, with snow in England. In Dublin the mean height of the barometer was 29·641 inches, pressure varying from 30·062 inches at 9 a.m. of Sunday (wind W.) to 29·200 inches at 3 p.m. of Wednesday (wind W.N.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was $40\cdot2^{\circ}$, or $6\cdot1^{\circ}$ above that for the previous week. The mean of the daily highest and lowest temperatures was $40\cdot8^{\circ}$. The absolute maximum in the screen was $50\cdot5^{\circ}$ on Tuesday (wind S.); the absolute minimum was $31\cdot9^{\circ}$ on Friday (wind calm). Rain fell on five days (including hail on two days, and sleet on one day) to the large amount of 1·773 inches. Of this quantity, 1·221 inches were measured on Friday and ·455 inch on Tuesday. There was a fog on Sunday, and a gale was recorded on Friday.

In the third week (13th–19th inclusive) open, but changeable weather was prevalent. Atmospheric pressure was generally lower to the north-westward than to the southeastward, and in consequence the winds were chiefly southerly to westerly. On Friday morning the force of a gale was reached, but otherwise the winds were not strong. On Wednesday a V-shaped depression crossed Ireland, causing a sudden shift of wind from S. to N.W.; but it soon backed again to S.W. A partial eclipse of the moon was seen in a clear sky on the morning of Thursday, the 17th. Showers fell on the afternoons of Friday and Saturday. Very little frost occurred in the British Isles, and on Friday very high temperatures were recorded in Ireland and Scotland. The weather remained persistently cold in Germany and eastern France. At 8 a.m. of Tuesday the thermometer was 4° at Berlin. The barometer was extremely high over Russia during this week; at Moscow it rose to 31·23 inches on Monday morning. In Dublin the mean atmospheric pressure was 30·124 inches; the extremes were—lowest, 29·720 inches, at 9 a.m. of Wednesday (wind, S.S.E.); highest, 30·401 inches, at 9 a.m. of Saturday (wind, W. by S.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was $43\cdot6^{\circ}$. The arithmetical mean of the highest and lowest daily temperatures was $43\cdot8^{\circ}$. On Friday the screened thermometers rose to $56\cdot2^{\circ}$ (wind, W.S.W.); on Thursday, they fell to $35\cdot9^{\circ}$ (wind, S.W.). Rain fell on four days to the

amount of $\cdot 179$ inch—the maximal fall in 24 hours was $\cdot 080$ inch on Tuesday (wind, S.). A lunar halo was seen on Monday evening, the 14th.

Throughout the week ending Saturday, the 26th, an anticyclone, or area of high atmospherical pressure, lay over Ireland and the Atlantic Ocean off the west coast of this country. At the same time, extensive and deep depressions passed eastwards across Scandinavia and Lapland, while areas of relatively low pressure lay also over the Mediterranean Basin. Light or moderate N.W. (N. to W.) winds prevailed in the United Kingdom, accompanied by comparatively mild and dry, but cloudy weather. At 8 a.m. of Friday the barometer varied from 30 \cdot 57 inches at Valentia Island, in Kerry, to 28 \cdot 59 inches at Haparanda, on the Gulf of Bothnia—rather steep gradients for N.W. winds consequently prevailed over Northwestern Europe. In Dublin the mean height of the barometer during the week was no less than 30 \cdot 510 inches, pressure ranging from 30 \cdot 347 inches at 9 a.m. of Sunday (wind, W.), to 30 \cdot 620 inches at 9 a.m. of Tuesday (wind, W.N.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 44 \cdot 0°; the mean of the highest and lowest daily temperatures was 44 \cdot 7°. The thermometers in the screen rose to 50 \cdot 1° on Saturday (wind, W.), having fallen to 35 \cdot 0° on Tuesday (wind, W.N.W.). Rain fell in measurable quantity on two days—Tuesday and Saturday—the total precipitation being \cdot 048 inch, of which \cdot 038 inch fell on Saturday evening, as a shallow secondary depression passed over Dublin from N.W. to S.E. Very cloudy skies prevailed during the week, the percentage amount of cloud at 9 a.m. and 9 p.m. being 87. Only on Tuesday was there much bright sunshine. The mildness of the northerly and northwesterly winds which prevailed was due to their origin in an oceanic anticyclone.

The last five days of the month were chiefly mild, changeable, and cloudy, and rain fell frequently although not in large quantity. On Tuesday, the 29th, a remarkable series of V-shaped depressions crossed the United Kingdom, causing a shift of wind from S.W. to N.W., squalls, showers, and a brisk fall of temperature. At the close of the month steep gradients for westerly winds prevailed over Northwestern Europe, and the weather was generally mild and damp.

At Greystones, Co. Wicklow, the rainfall in January, 1889, was 3 \cdot 57 inches, distributed over only 8 days. Of this quantity 1 \cdot 64 inches fell on the 11th, and \cdot 96 of an inch on the 8th.

PERISCOPE.

THE MINERAL WATER OF LA BOURBOULE, PUY-DE-DOME, FRANCE.

ON May 27, 1887, Mr. M. A. Boyd read a paper before the Section of Medicine of the Academy of Medicine in Ireland on the mineral springs of Auvergne. In that paper Mr. Boyd expressed the opinion that La Bourboule, situated at an attitude of 2,600 feet above the sea, was one of the best springs on the Continent; and he added that the waters bore exportation well. A full abstract of Mr. Boyd's communication will be found at page 329 of the eighty-fourth volume of this journal (October 1, 1887). It will interest our readers to learn that the firm of Messrs. Ingram & Royle, 52 Farringdon-street, London, E.C., have made arrangements with the proprietors of the springs for the importation of La Bourboule Water, which is now largely prescribed for eczema and many other diseases. This firm have sent us a sample case of the mineral water derived from the Perrière Spring (source Perrière). The Mineral Water of La Bourboule—of which there are two chief springs, "Choussy" and "Perrière"—is, of all known waters, that which contains the largest proportion of arsenic, allied with the best adjuncts for its assimilation. It is a natural arsenical medicament, far preferable to any pharmaceutical preparation, because it is in this form that arsenic is most easily digestible and most efficacious. By its use, moreover, all those risks of error by excess of quantity, which are not entirely inseparable from artificial preparations made in the laboratory of the chemist, are avoided. One litre of the water contains 28 milligrammes of sodic arseniate (or at the rate of 1.96 grains per gallon); so that the third part of a litre (nearly three-fifths of a pint, or a large tumblerful) contains the average dose of arsenic pharmaceutically administered. Furthermore, the mineral constituents of the Bourboule water are the same as those of the blood. It contains about $6\frac{1}{2}$ grammes of mineral salts—viz., nearly 3 grammes each of chloride of sodium, and bicarbonate of soda, with other minor elements in small proportions; making it equivalent to the "mineral serum of the blood, issuing naturally from the bowels of the earth." This mineral water is, consequently, of all others the best adapted to repair the waste of the mineral constituents of the blood; it alone combines all the properties which go to constitute the most fortifying, the most restorative, and the most easily assimilated medicine. It is eminently fitted for, and digestible by, delicate children, debilitated adolescents, and adults of weak constitution, on whom its revivifying influence is most remarkable. Analysis of Messrs. J. Lefort and Bouis, in grains per gallon :—Metallic

arsenic, 0·4935 grains ; or arsenious acid, 0·7567 grains ; or arseniate of soda (Codex standard), 1·9929 grains. The subjoined shows the proportions of its other chemical constituents, per litre :—Carbonic acid (free), 3·626 grains ; chloride of sodium, 198·842 grains ; chloride of potassium, 11·361 grains ; chloride of lithium, trace ; chloride of magnesium, 2·240 grains ; bicarbonate of soda, 202·440 grains ; bicarbonate of lime, 13·335 grains ; sulphate of soda, 14·588 grains ; peroxide of iron, 0·147 grains ; protoxide of manganese, trace ; silicic acid, 8·400 grains ; alumina, trace ; organic matter, trace. Total, 454·979 grains. The Bourboule water is invaluable for the treatment of cachexia of all forms, chlorosis, anemia, lymphatism, scrofula, herpetism, cutaneous affections, tetter, eczema, psoriasis, angina, bronchitis, laryngitis, asthma, pulmonary phthisis, and all herpetic affections of the respiratory passages, intermittent fever, visceral obstructions, chronic rheumatism (arthritic), paralysis, chronic gout, albuminuria, and diabetes with cachectic complications. The dose varies from half a tumblerful to two or three tumblerfuls a day, one half the quantity for children. It may be taken at mealtimes, pure or mixed with wine. Sometimes it is best taken half an hour before meals. If the digestive organs are at all unfavourably affected by it, it may be warmed by the bain-marie, or mixed, either with a warm infusion of limes, or with orange-peel juice, or Selters waters, &c. In case of colics or diarrhoea, two or three drops of tincture of opium, or belladonna, may be added. Bourboule water, used as a lotion, local douche, or pulverised in the form of spray, is in general an effective cure for slight cutaneous diseases, or affections of the mucous membrane, where accessible, especially when imbibed at the same time. It preserves the freshness and beauty of the complexion, and heals chaps, by restoring the suppleness of the epidermis, and undergoes no deterioration by exportation.

EARTH AS A TOPICAL APPLICATION IN SURGERY.

DR. ADDINEL HEWSON'S book advocating the use of dry earth as a topical application in surgery has reached a second edition. Dry earth was used in the Confederate Service during the Civil War, 1861–65, especially in the year 1864, but its use was never resorted to whilst it was possible to procure more cleanly dressings ; and Dr. Hewson brings forward no new facts to encourage the profession to use it.

HEDWIGIA BALSAMIFERA.

At a meeting of the Sociétés Savantes, MM. Gauchar, Combemate, and Marestang produced a paper on the physiological action of *hedwigia balsamifera*, a tree belonging to the N. O. Terebinthaceae. It is a native of the Antilles. The experiments were made on guinea-pigs with alcoholic and watery extracts prepared from the bark of the trunk and from the bark of the root of the tree. The dose was 0·146 gramme per

kilogramme of the animal's weight. The effect was very marked, heart and lung troubles, and the dose was increased to 0.161 gramme per kilogramme. Death resulted. The physiological effects of the extracts were identical, and are summarised as follows:—1. A rapid fall of temperature. 2. Paralysis of the hinder limbs; general convulsions; dilatation of the pupils. 3. Vaso-motor paralysis, well-marked on the ears. 4. Irregular respiration and paralysis of the heart precede death. No lesion is found after death other than visceral congestion.—*Gazette Hebdomadaire de Médecine et de Chirurgie*, No. 40, Tome XXV.

MORAL INSANITY.

THE Supreme Court of Connecticut, speaking of moral insanity, says:—"It is true that courts have been slow to recognise this form of insanity as an excuse for crime. Nevertheless that it exists is well understood, and that in some cases it is clearly defined" (*Anderson v. The State*, 43 Conn., 515).—*Medical Herald*, Louisville, Kentucky, Vol. X., No. 114.

HÆMORRHAGE CONSECUTIVE TO INTERNAL URETHROTOMY.

IN a communication to *La France Médicale*, No. 89, Dr. Henri Picard gives the history of an internal urethrotomy performed on a healthy man, thirty-five years of age. For several days after the operation a troublesome bleeding continued, although all the usual remedies were tried to control it—ice, insertion of bougies, styptics applied locally, injected hypodermically, and given by mouth.

SALTS OF COD-LIVER OIL.

IN a paper read before the Sociétés Savantes, MM. Arni, Gautier, and Mourgues describe six alkaloids as present in cod-liver oil. They consider them to be products of *post-mortem* changes:—Veritable leucomains, butilamin, amylamin, hexylamin, hydrodiniethyl pyridin, in combination with aseltin and morrhuin. Aseltin is a feeble base, but morrhuin is an appetiser, and in full doses acts both as a diuretic and as a diaphoretic.—*Gazette Hebdomadaire de Médecine et de Chirurgie*, No. 43, Tome XXV.

DER ACHTE CONGRESS FÜR INNERE MEDICIN.

THE eighth Congress of Practice of Medicine will meet at Wiesbaden, from the 15th to the 18th of April, 1889. Herr von Liebermeister, of Tübingen, has accepted the presidency of the Congress. Herr Schultze, of Bonn, will deliver a memorial oration on Herr Rühle. The following subjects will be discussed:—Monday, April 15, "Ileus and its Treatment." Readers of Papers—Herr Curschmann and Herr Leichtenstern. Wednesday, April 17, "The Nature and Treatment of Gout." Readers of Papers—Herr Ebstein and Herr Emil Pfeiffer. The following communications are announced:—Herr Immermann, of Bâle: "On the

Functions of the Stomach in Tubercular Phthisis." Herr Petersen, of Copenhagen: "On the Hippocratic Method of Cure." Herr Fürbringer, of Berlin: "On Virile Impotency." Herr L. Lewin, of Berlin: "On Practical Pharmacy and Medical Practice."

GLASS CATHETERS.

At a meeting of the Obstetrical Society of Philadelphia of the 1st of November, 1888, Dr. H. A. Kelly described some glass catheters. He claims for them that they are cheap, clean, safe, and never break when in use. So far he has used them only on the female.—*Ph. Med. and Surg. Rep.*, Dec. 1st, 1888.

HYPNOTISM AS A REMEDY FOR INSOMNIA.

DR. A. C. HUGENSCHMIDT has found hypnotism useful in a number of refractory cases of insomnia. He concludes that hypnotism certainly deserves to be faithfully tried, for he is confident that much good can be derived from its careful use in medicine. Whenever one or several drugs fail to produce the desired effect in a certain disease, give hypnotism a fair trial, and you will probably be repaid for your efforts. As to danger from its use, he has studied this method carefully for several years and employed it in many cases, without meeting with one single annoyance. He used it, daily in one case, for over six months, without any apparent trouble. Professor Bernheim, of Nancy, has recorded one case in which he had hypnotised a patient daily for over two years, without noticing the slightest change in the intellectual state of his patient.—*Philadelphia Medical and Surg. Reporter*, Dec. 1st, 1888.

COCAIN POISONING.

On the 31st of January an inquest was held at the University College Hospital, London, on the body of C. S. Fletcher, who died from twenty grains of cocaïn administered by misadventure. Consciousness was retained almost to the fatal issue, which was preceded by opisthotonos and convulsive movements of the limbs. Deceased had suffered from tuberculosis of the lungs, bladder, and kidneys. The left kidney had been entirely destroyed. The brain and lungs were congested. The heart cavities contained blood-clots.

SUPPURATIVE TONSILLITIS, WITH PASSAGE OF PUS INTO THE MEDIASTINUM AND PLEURA: DEATH.

DR. REID, of New York, reports (*Medical and Surg. Rep.*) the case of a man, aged twenty-seven, who was suffering from suppurative tonsillitis. The escaped pus followed the course of the deep fascia of the neck into the mediastinum. Pus was also found in the left pleural cavity and over the pleura of the left lung.

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NOTICES TO CORRESPONDENTS.

In future no papers will be inserted as "Original Contributions" except on the distinct understanding that they are sent for publication to this Journal alone, and that only abstracts of them (with due acknowledgment) shall afterwards appear elsewhere.

Authors of "Original Communications" will please consider themselves bound in honour to a strict observance of this understanding.

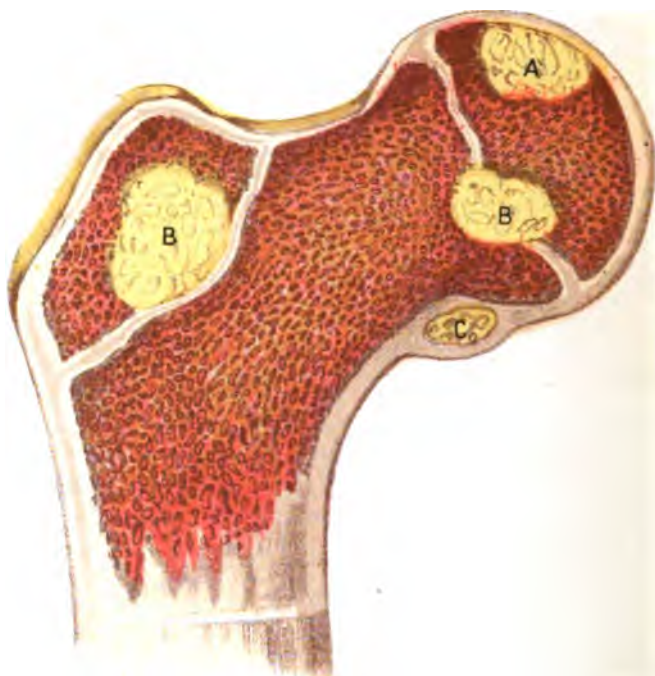
Authors of Communications are requested to write the prescriptions in their paper in full, and in English.

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Plate I



A SUBCHONDRIAL CENTRE

B INTRAOSSEOUS

C SUBPERIOSTEAL

D* M^cARDLE ON TUBERCULOSIS OF BONE.

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(Continued from p. 108.)

CASE II.—*Extensive Tubercular Deposit in Lower End of Tibia, causing Synovitis of Ankle; Trephining; Cure.*—John C., aged thirty-four years, came under my care on the 20th of September, 1883. Some ten months previous he slipped when crossing a wall, and fell heavily on the left foot. After a little time he was able to walk about without much uneasiness, until three months or so after the accident, when pain occurred in the instep and swelling appeared at the ankle. This was treated by liniments, strapping, and blistering; but the pain continued, the swelling increased, and when I saw him the ankle was in the following state:—There was a reniform fluid swelling round outer malleolus; the anterior tendons were pushed forward by fluid collected in the ankle-joint; the lower end of tibia was nearly twice the normal size; was tender on pressure, which caused pitting; and when allowed to hang down, throbbing pain occurred; the motions of the ankle were limited to the slightest amount of flexion and extension; the leg was wasted, and the foot cold and clammy.

Operation.—Incision two inches in length on middle of inner malleolus; large trephine passed through tibia and into fibula; scraping away of extensive tubercular deposit in end of bone; plugging with iodoform gauze.

The wound healed by granulation in five weeks, but, one month later, pain again set in, and, after fomenting and poulticing for two days, the cicatrix opened at one end, and gave exit to about one drachm of healthy pus. Rapid healing now took place, and since that time the patient continues well.

CASE III.—*Acute Tubercular Osteomyelitis at Lower End of Tibia ; Perforation of Articular Cartilage ; Suppurative Synovitis of Ankle-joint ; Trephining ; Irrigation of Joint ; Cure.*—Thomas R., aged nineteen years, came under my care on the 7th of May, 1884, in the following condition :—His right ankle, which one month before had become suddenly painful and swollen, was one and a half inches greater in circumference than the left ; it was tender, red, and glossy. Pitting on pressure occurred as high as the upper third of tibia. Any motion of the joint caused great pain ; and pressure on the sole of foot could not be borne, painful startings of the limb occurring at each attempt at laying any weight on the foot. The local temperature was 3° higher than on the opposite side—shivering frequently occurred—and the general temperature was 99° at 9 a.m., 102.6° at 7 p.m.

Operation.—Free incision down to bone ; elevation of periosteum ; large trephine passed into bone ; scraping away of pus and cheesy deposit, which showed that the cartilage was perforated about the centre of the tibial articular surface. Through this aperture pus welled up into the trephine opening, and, by moving the joint, a large amount was evacuated. The joint was washed out with warm carbolic solution, 1 per cent., the cavity in the bone plugged with iodoform gauze, and carbolic dressings were applied. For two months these dressings were continued, at intervals of from five to ten days, the swelling gradually subsiding, and the wound filling with healthy granulation tissue. One evening, when healing was almost complete, after some unusual exertion, throbbing set in at the site of trephine operation. A few poultices caused a discharge of pus, which ceased in a few days, and from this time healing was uninterrupted.

CASE IV.—*Tubercular Osteomyelitis at Lower End of Tibia ; Suppuration ; Perforation of Ankle-joint ; Trephining of Tibia in hope of saving Foot ; General Tarsal Synovitis, which does not subside ; Symes's Amputation ; Healing.*—Laurence T., aged twenty-one years, consulted me in the summer of 1884 about a stiffness and swelling at the right ankle. Tibia was greatly enlarged, and, at its inner aspect, tender on pressure. I advised operation, but he wished to see how other treatment would affect the joint. In the December of the same year he came under my care for operation, in the same condition as Case III., swelling being more marked in the tarsal region. Operation as in last case. The entire lower end of tibia was softened, and the articular cartilage destroyed.

After a few days' treatment, as in Case III., it was found that the disease had spread too far to be checked, and amputation became necessary. The case did well, but early operation would have saved the foot.

CASE V.—*Tubercular Osteitis at Lower End of Tibia; Synovitis of Ankle, and Tendon Sheaths; Trephining; Cure.*—Miss M. O'B. came under my care with symptoms as in Case III. Operation and after-treatment similar. Operation, 7th of November, 1886. Complete healing, January, 1887—since which time there has been no return of swelling or pain.

CASE VI.—*Chronic Osteitis at Upper End of Femur; Trephining; Cure.*—Mr. H., aged twenty-six years, came under my care in August, 1883. For three years he had suffered from pain and stiffness in the right hip. On examination I found that the great trochanter and upper third of femur were much enlarged, pitting on pressure occurred at middle of outer side of thigh, and there was filling up of the ischio-trochanteric fossa. Pain was referred to the outer side of knee and to the sciatic nerve and its divisions. Any attempt at moving the thigh caused spasm of the adductors. The leg was flexed and adducted, and had been so for months. Under chloroform the shortening disappeared, and the movements of the joint were almost normal.

Operation.—Free incision from upper end of great trochanter, 3 inches in length, down to bone; elevation of periosteum below most prominent point of great trochanter, where a trephine opening in the bone gave exit to a drachm or so of curdy pus. With a large scoop the neck of femur and the trochanter were freed of a large amount of fungous granulation tissue, with many pieces of necrosed bone; plugging with iodoform gauze; drainage; earbolic dressings. The temperature reached 101° on the evening of the second day, but after that declined to normal on the fifth, after which date healing went on without delay. In this case the limb was placed in the position of extension in forty-eight hours after operation, without causing pain. The patient is now able to be about, and does not suffer the slightest uneasiness. The limb has regained much of its strength.

CASE VII.—*Chronic Osteitis at Upper End of Femur; Large Opening in Bone; Evidement; Cure.*—Mr. P. B., aged fifty-two years, came under my care on the 20th of February, 1886, in the following condition:—The limb was shortened 2½ inches (and had been so since he was twenty years of age. At twelve he had morbus coxæ, but shortening became gradually more marked, until it had reach the extent specified). The great trochanter was much thickened, tender on pressure, and at its posterior aspect a sinus led towards the back of the neck of the femur. From

this sinus a thin foetid pus discharged. In all directions from the opening of this sinus cicatrices could be seen marking the site of operations which had been performed for the purpose of healing it. There was deep pain in the hip, and pain extended along the outer side and back of thigh, and after walking any distance a throbbing pain was felt in the hip. Believing that central osteitis was the cause of the trouble, and that the posterior part of the femoral neck had been perforated by the spreading disease, leading to the formation of abscesses, the opening of which was followed by the formation of the sinus referred to, I laid bare the upper third of the femur, and with a chisel removed a piece from its outer aspect, extending one inch downwards from the most prominent part of the trochanter. Through this opening I evacuated with a large scoop a considerable quantity of necrosed tissue and some curdy pus. The sinus leading to the neck of the femur I scraped with a small sharp scoop. The bone cavity and the sinus were now plugged with iodoform gauze, and during the course of the case dressings were conducted as in the other cases of trephining, with strict antiseptic precautions, at intervals of five to nine days as was necessary. An uninterrupted recovery was the result—the sinus healed firmly, the pain and throbbing disappeared, and the patient is now able to walk six to eight miles at a time without inconvenience or bad result of any kind. Occasionally a slight discharge comes from the canal which now leads into the neck of the femur.

CASE VIII.—*Acute Osteitis at Upper End of Femur; Deep Trephining; Cure.*—Mr. H. O'R., aged thirty years, came under my care on the 24th of February, 1887, giving the following history:—A fortnight before he came under my care he had fallen on his right hip. At the time he experienced rather sharp pain, but after resting for half an hour this subsided, and he was able to walk a distance of two miles. In some hours pain, stiffness, and swelling set in, and on the following night he became feverish. Leeches, fomentation, and poultices were applied, but pain continued. Extension was tried, but afforded no relief. Shiverings occurred on the fifth or sixth day, and when I saw him his condition was as follows:—Pulse, 120; temp., 103.2°; hectic appearance; complained of shiverings; feet clammy; tongue coated; urine scanty, high coloured, and depositing large amounts of lithates. Any attempt at moving the hip caused great pain. There was considerable swelling round and over the great trochanter, superficial cedema in upper third of thigh, and a sense of deep fluctuation in the trochanteric region. Thickening of the upper third of femur could be distinctly made out, but the patient explained that this state of things existed since he was seventeen years old, when he had a severe attack of inflammation of the hip, which confined him to his bed for some months.

Operation.—Free incision down to bone; trephine, 16 mm., passed one half inch into bone, removing piece; discharge of sero-sanguineous fluid; reintroduced and passed to a depth of one and a half inches in the direction shown in Figs. 6 and 7, giving exit to some pus. The scoop removed necrosed cancellous tissue, and cheesy deposit, and there was free hæmorrhage. Fig. 5 is a representation of the cervix femoris, which I trephined before conducting this case, and shows the course which the trephine took in the operation.

Fig. 5.



The after-treatment was carried out as in other cases, the patient making a permanent recovery, although at intervals of three or four weeks small abscesses burst through the cicatrix. For the past eight months there has been no discharge, nor has the patient had any uneasiness in the hip.

CASE IX.—*Chronic Tubercular Osteitis at Upper End of Femur; Small-trephine Opening and Drainage; very slow Recovery.*—Miss H. F., aged twenty years, came under my care in December, 1887, with symptoms as in Case IV. Operation. January, 1888, with 8 mm. trephine. For weeks after small spicula of bone and curdy pus came away, and for months free suppuration was going on, notwithstanding constitutional and local treatment carefully carried out. In May I enlarged the opening in the bone, scraped the cavity, and dressed as in other cases. Even after this, firm healing was not established for three months.

The above cases illustrate the procedure and after-treatment sufficiently, so that I may conclude the list of trephining by merely referring to the position and number of bones which I have trephined during the past few years. In addition to the cases noted above, I have trephined the lower end of femur at the inner condyle in two cases; the upper end of tibia in three; upper end of humerus, two; olecranon, three; lower end of radius, one; and astragalus in one.

Useful limbs resulted in all the cases in which the operation was conducted early—the only failures being in one case of osteoarthritis at the ankle; Symes's amputation became necessary. In one shoulder case resection was demanded; in one case of trephining the olecranon ankylosis occurred at the elbow. In one of the hip cases there is still a slight discharge, but no pain or inconvenience; while in the last case noted, although she is well, sufficient time has not elapsed since healing to justify me in claiming the case as a success. One must be prepared for abscess formation on and off during the months following trephining unless the diseased tissue is thoroughly eradicated; but when an abscess forms in the bone the trephine wound, filled with soft tissue, offers an easy exit for the pus, and perforation of the articular cartilage will not be likely to occur.

The cases noted show the method of treatment which I believe to be most generally successful in dealing with osteal tuberculosis; and in calling attention to the advantages of trephining I am anxious to point out the situation in which the trephine can be most satisfactorily applied to different bones, and the conditions which must be fulfilled if we expect to obtain the more beneficial effects of the operation.

Beginning with the upper extremity. The head of the humerus can be reached and readily drained by an incision along the bicipital groove, drawing outward of the deltoid, and slight rotation inwards of the arm. The periosteum is then raised along the outer side of the biceps tendon, avoiding its sheath. The medium-sized trephine, 12 mm., for adults, the smallest one, 8 mm., for children, can be applied so as to pass obliquely from below the greater tuberosity upwards and inwards through the epiphysary cartilage into the head. This allows (when the arm is placed across the chest) free drainage so long as the patient sits up or lies on the opposite side. When the upper end of ulna is diseased in adults the crown of the trephine should be placed, not on the most pro-

minent point of the bone, but over a spot $1\frac{1}{2}$ to 2 cm. from the tip of the olecranon, the direction of the channel being upwards and forwards. Here the small trephine usually suffices, even in adults.

At the wrist the only bone I have trephined is the radius, and in opening it I believe the operation should be performed on the outer and anterior aspect 2 cm. above the styloid process. This allows free drainage when the arm is placed in a sling in the prone position, and prevents undue interference with the dorsal or flexor tendon sheaths.

My idea of trephining for tubercular disease of the upper end of the femur is that we should at once reach the diseased centres, that the channel leading thereto should not be tortuous, and that its direction should be such as to favour drainage. If the trephine does not reach the cheesy deposit or intra-osseous abscess, gouging, scooping, or other secondary operation is necessary to remove the diseased tissue. The mere opening of the bone does no good, and if we are dealing with advanced tubercular osteitis, on the contrary, it allows (unless extreme care is taken with the dressings) a simple to become a septic inflammatory process, or it excites still further the tubercular disease, and brings about surgical dissemination of the tuberculosis, which, becoming general, ends in the production of pulmonary, hepatic, renal, or other fatal form of the affection. Should we, after a superficial application of the trephine, proceed to scoop out the diseased cancellous tissue of the upper end of the femur, sacculation is almost certain to result and form a serious obstacle to the complete and essential drainage of the bone, unless the opening be large and in good position. In adults the large trephine (16 mm.) will be necessary; in children under ten the small one (8 mm.) usually suffices. The point of application, in the absence of any softening of the bone surface, is, in adults, $1\frac{1}{2}$ cm. below the most prominent part of the great trochanter, and a little behind the middle line of the bone; in children, the central point of the great trochanter answers. The direction in adults is upwards and inwards towards the middle of Poupart's ligament, as in Fig. 6, C, inclining the point of the trephine forwards, as in Fig. 7, C. In children the direction is similar, but care must be taken not to needlessly interfere with the epiphysary cartilage. This can be done by withdrawing the instrument after it has passed through 1 cm. of bone, the inner surface of which should be examined for pus, cheesy deposit, or other evidence of disease.

If none shows, and there is undoubted femoral disease, the trephine may be reintroduced and a portion of the cancellous tissue removed until a clear channel is made reaching up to the diseased spot.

Macnamara, in his work on "Diseases of Bone," says:—"In cases of osteitis of the head of the femur I have not been able to reach the diseased bone with a trephine, but, in its condyles, the head of the tibia, and so on, if a portion of bone can be removed in this way from the epiphysial cartilage, the result is often most satisfactory."

What the ordinary instrument does fairly in the superficial bones the long-barrelled trephine which I have had specially constructed does in the upper end of the femur and humerus—that is, it removes diseased bone lying subjacent to the epiphysial cartilage and even from beneath the articular cartilage. The set of trephines, shown in Fig. 8, I exhibited some time since when bringing some of the cases operated on before this Section of the Academy. The sizes, which I have found suit admirably, are 16, 12, and 8 mm. Less than 8 mm. will not give free exit to discharges, and many of the failures following paracentesis ossium may, I think, be attributed to an insufficient opening in the bone.

Plate I. shows the situation in which femoral tuberculosis usually begins, as in other joints, the subchondrial (*a*), intra-osseous (*b b*), and subperiosteal (*c*) are represented, the one most frequently met with being that near the epiphysary line. If a deposit here can be removed, or an osteitis be checked before destruction of the cartilage occurs, a joint with normal function should result.

SECTION C.—JOINT TUBERCULOSIS.

The next class of cases to which I would refer are those where the local disease engages intra-articular structures, or structures other than bone, so intimately connected with the synovial membrane that extension thereto of disease is likely to take place, unless prevented by judicious treatment. The study of the ultimate results of resection for tubercular disease, especially if advanced, is very disheartening, and this holds good for all the joints. If we can prevent the spread of disease in an early stage, there is a fair chance of thoroughly eradicating it; but, if we allow a circumscribed centre to infect a neighbouring joint, fungous synovitis, osteo-myelitis, or other serious trouble results, the outcome of which is often destruction of the joint, and not rarely a general infection. Bidder, in his paper on Joint Tuberculosis

Fig. 6.

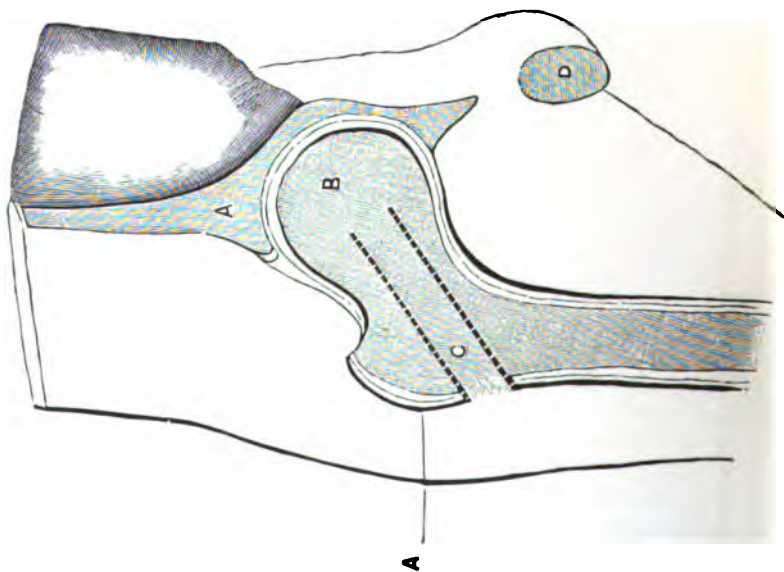
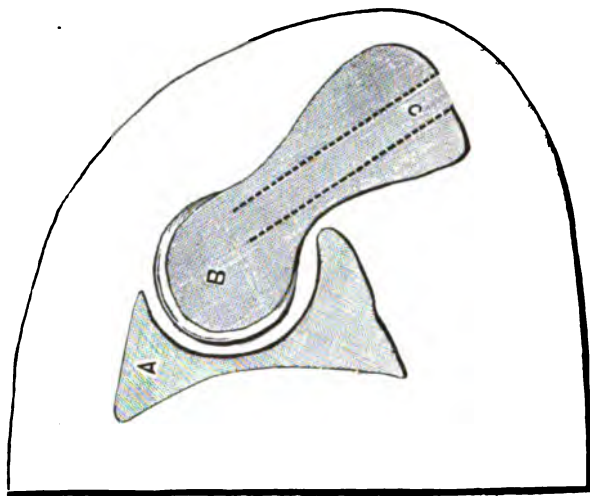


Fig. 7.



MA. M'ARDLE ON TUBERCULOSIS OF BONE.

Fig. 6.—Lateral vertical section through hip.

B, head of femur ; C, course of trephine ; D, os pubis.

Fig. 7.—Horizontal section through hip-joint.

A, pubic portion of acetabulum ; B, head of femur ; C, course of trephine.

Fig. 8 a.



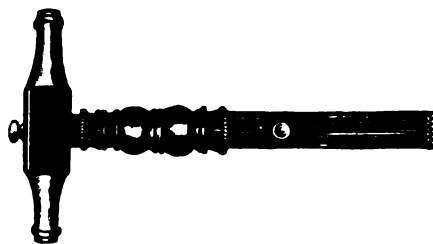
16 mm.

Fig. 8 b.



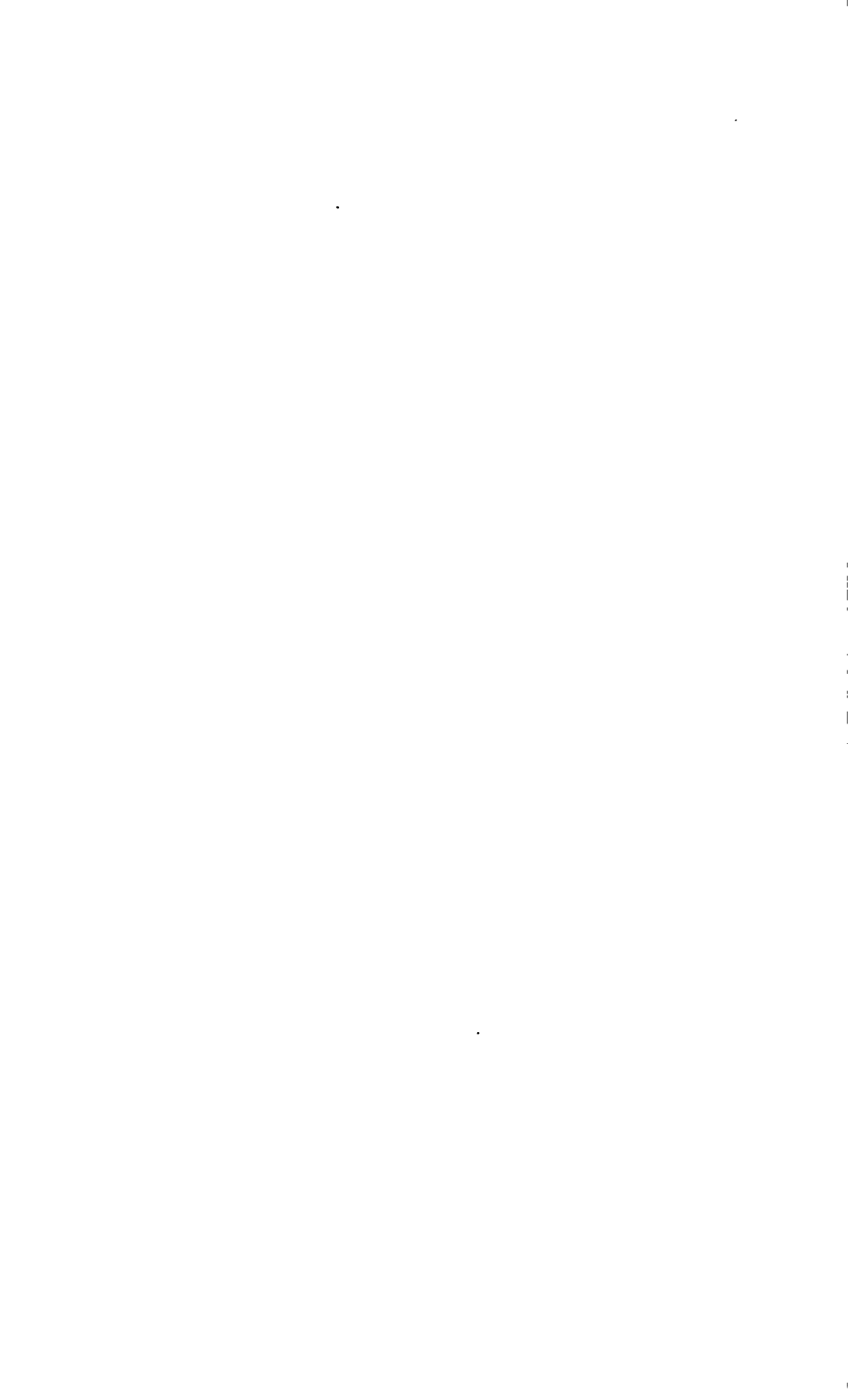
12 mm.

Fig. 8 c.



8 mm.

MR. M'ARDLE ON TUBERCULOSIS OF BONE.
Trephines for use in deep-seated Bone Disease, reduced one-half.



(*Deut. Zeit. für Chirurgie*, p. 80, 1884), gives at length thirty cases of scrofulous disease of the larger joints, the details of which have a direct and important bearing on the question of active surgical treatment of local tuberculosis, since his observation extends over many years, various methods of treatment were fairly tried, and the patients were watched carefully for long periods. As a result of his experience, he recommends early removal of diseased tissues by arthrectomy or resection, as the case may require. In the former operation he prefers opening joints by flaps rather than simple incision, as the erosion can be more complete. He condemns in unequivocal terms the palliative treatment, and shows by his records that it has nothing to recommend it. In looking over Dr. Berthold Körrf's paper, "Über die Endresultate von Gelenk-resection" (*Deut. Zeit. für Chirurgie*, p. 149, 1885), I find that the cause of death in most of the fatal cases was meningitis, phthisis, and amyloid liver—in other words, general tuberculosis arising from a local centre which had been allowed to remain long untouched. We see that early resection is followed by rapid healing of the wound and restoration of the patient to health, while the ultimate results are infinitely better than when delay has occurred. If the early removal of disease, even when it has engaged large and vascular structures, is followed by good results, the removal of localised centres should still further reduce the immediate, as well as the ultimate mortality. The following are cases on which I operated with that object.

CASE I.—Patrick L., aged thirty-eight years, a farmer, came under my care on October 10th, 1883. For eight months he had suffered much with severe pain in the centre of knee, swelling and stiffness of joint. To relieve these symptoms blisters were applied, and afterwards the limb was put up in a plaster splint and allowed to remain therein for three months, pain during all this time being more or less marked. When the plaster was removed he found his leg stiff, and swelling had slightly disappeared, but every attempt at raising the limb caused pain.

Condition on Admission to St. Vincent's.—He was unable to get about on the leg without great pain, and so his general health had become impaired. The leg was slightly flexed at the knee, the calf and thigh wasted, the foot cold and clammy. Above the patella a fluctuating swelling extended four inches, while below and on each side of that bone, and engaging the sides of its ligament, was a doughy swelling, pitting deeply on pressure; deep-seated fluctuation could be detected in this mass, and the pain was chiefly referred to a point deeply placed in the joint behind

the ligament. Believing that the synovitis in this case was kept up by suppurating tubercular material behind the patellar ligament, I performed the following operation:—An incision was made as for resection of the knee, extending from one condyle to the other; the skin, fascia, and tibio-patellar ligaments were cut through on both sides; at this stage it could be seen that gray granulation tissue had invaded the entire region behind the ligamentum patellæ. The fungous tissue projecting on each side was cut through and exit given to a quantity of curdy pus; the fungous tissue was then scraped away, the cavity mopped out with chloride of zinc solution, a large tube passed behind the ligament, and antiseptic dressings applied. First dressing 24 hours after operation; discharge copious and tinged with blood; temperature, 99.2°. Second dressing three days later; slight discharge of creamy pus; swelling much less. Third dressing seven days later; wound granulating; very little discharge; supra-patellar swelling quite gone; no pain or uneasiness in joint.

After this the patient's strength improved rapidly, and three months after the operation he had a perfectly movable and painless joint. Since that time he has continued to work at his farm, and he has never suffered any inconvenience from the knee.

CASE II.—Mary H., aged eighteen years, general servant, came under my care on the 6th of January, 1885, with symptoms resembling those noted in Case I. The history of deep central pain, stiffness, and swelling, unrelieved by blistering, firing, and leeching, caused me to examine the infra-patellar region carefully, and I found that a deep nodule could be felt at the most prominent part of the swelling, which appeared to the inner side of the patellar ligament. This nodule was tender on pressure, and when patient attempted to raise her leg, severe pain occurred at this part.

Operation.—I made an incision from the inner condyle to the front of the ligamentum patellæ, and on reaching the painful nodule found it to be as in Fig. 6, Plate II.—a cheesy mass, surrounded by inflamed and indurated tissue. I dissected out the mass with the handle of a scalpel, and discovered at its outer side a small collection of creamy pus. The wound was washed out with carbolic solution (1—100), a drainage tube laid in, three sutures placed at the inner angle of the wound, and antiseptic dressings applied.

This patient made an uninterrupted recovery, and in one month she left the Convalescent Home at Linden with a thoroughly useful limb.

CASE III.—Peter D., came under my care on the 17th of September, 1885. For three years he had suffered a great deal from pain and swell-

ing in the left knee, arising from inflammation, the result of a kick from a horse. Ordinary methods of treatment gave him no relief, and so his leg was placed on a straight splint, and morphin administered, until after two months' rest, and continued drugging with morphin, he obtained some relief. He was then brought to the seaside for four months, still wearing the splint. Here his strength improved rapidly, and when leaving for home he had little or no pain. After wearing the splint for seven months, he tried to get along without it, but found that he could not raise the limb without severe pain radiating from the middle of the joint.

When he came under my care, I found that firm fibrous union had occurred between the femur and tibia, and the patella and its ligament were pushed forward by an elastic swelling, which was painful on pressure below the bone, and gave a sense of deep fluctuation. In this case I thought it advisable to leave the limb fixed, as it was in good position, and so I performed the following—

Operation.—An incision was made from condyle to condyle down to, but, as in the other cases, not through the ligament. The lateral portions of the incision were carried into the infra- and post-patellar tissues, and exit was given to a considerable amount of creamy pus, and masses of granulation tissue were removed by scooping. On the inner aspect of the joint a large patch of the synovial membrane was removed, and sero-synovial fluid discharged. The outer part of the synovial membrane being healthy, it was not interfered with. A large drainage tube was placed in the pouch above patella, gauze plugged well into the wound, and antiseptic dressings applied. The temperature never reached 100° F., nor was there a single unfavourable symptom until healing was complete. The knee was allowed to remain fixed, being supported by a posterior splint. One month after operation, he was able to get about with the aid of a stick. Three months later he returned to the country, and since then he has been in good health, and can use the limb as freely as the other. There is now bony ankylosis, and the limb is very slightly flexed. If before applying the fixed splint the infra-patellar deposit had been removed, it is more than likely a movable joint would have been the result.

If such cases as the foregoing are allowed to pass as cases of chronic or tubercular synovitis, the damage to the joint can easily be foretold; for, although many cases of deep chronic abscess of the knee recover without operation—and we may argue that they arose from tubercular deposit behind the ligament—the vast majority will, in the absence of operation, lead to destructive lesions of the joint. The usual course of such cases is—the patient first finds that kneeling, sudden flexion of the leg on the thigh, or any

such effort, causes pain deeply in the joint. After a little time stiffness occurs and swelling, which will be, for the most part, due to distension of the synovial membrane, as a result of a subacute synovitis arising from the presence of the tubercular lesion in the infra-patellar pad. This synovitis is the trouble which causes the patient to seek surgical advice, and for the synovitis he is treated. Meanwhile the original disease spreads in all directions, extending into the synovial membrane, which becomes thickened; the fungous growths invade the ligaments, and destruction of the joint is the result.

Besides the above cases, I have removed well-defined masses of tubercle from the following situations:—In a fourth case from behind ligamentum patellæ; in one from popliteal space: one from inner side of knee, where it had infiltrated the joint; in two from the back of wrist, infiltrating the joint and causing synovitis; in one from front of ankle, calcaneo-astraguloid joint, and in one from front of metacarpal joint of index finger. Of these ankle, knee case and in one wrist; in both it was present.

In cases other than the above which have been treated on the following conditions, illustrated in Plate I.

CASE I.—Resection of Knee.—Bones healthy, but the femur enlarged, infiltrated with tubercular matter, adherent to the femur, as in Fig. 1, thus preventing the action of the joint. The lower edge of the patellar cartilage was infiltrated with extension of the tubercular tissue.

CASE II.—Resection of Knee.—Infra-patellar pad and bursa the seat of extensive tubercular infiltration, as shown in Fig. 2, bulging into joint and invading lateral ligaments. Inflammatory exudation raising cartilage from outer condyle.

CASE III.—Arthrectomy.—Extensive cheesy deposit in infra-patellar pad; bursa inflamed but not tubercular; semilunar cartilages invaded by disease; edges frayed and softened, as in Fig. 3. In this case removal of the cartilages and infra-patellar pad secured a good limb, with a fair amount of motion, but not so useful as early operation would have left.

CASE IV.—Resection of Knee.—Fungous granulation tissue spreading from infra-patellar pad, destroying semilunar cartilages and invading lateral and crucial ligaments, producing subluxation of knee, as in Fig. 4. In this case the disease evidently commenced in the bursa, behind

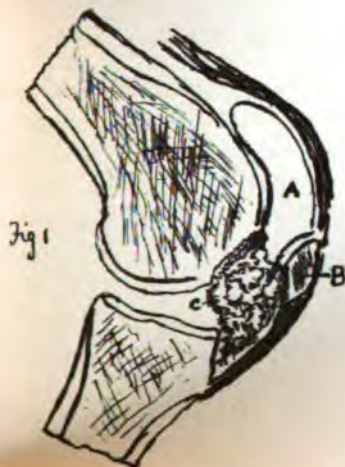
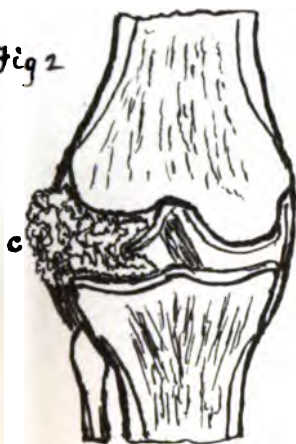


Fig 2



EXPLANATION OF PLATE II.

In all the figures A represents the synovial sac; B, the patella; C, large granulation tissue; D, clot deposit.

In Fig 3, E and F represent the external and internal semitarsal cartilages; G, the cranial ligaments; and H, the patellar ligament.

Fig 4

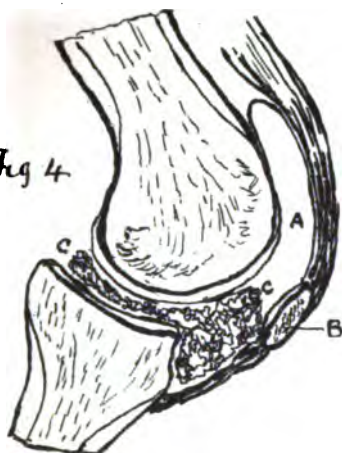


Fig 5

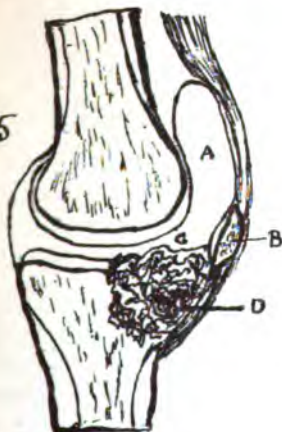
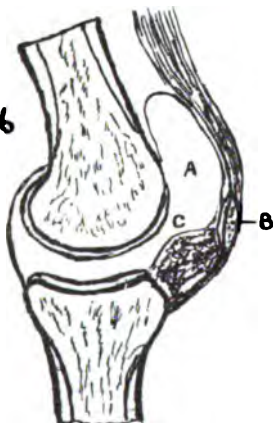


Fig 6



the patellar ligament, as here cheesy deposit was marked, while elsewhere there were only scattered little specs of cheesy material in the granulation tissue. The result was a good fixed limb, but recognition of the disease at the start might have allowed of a good joint being preserved, as the bones were perfectly safe.

CASE V.—Resection of Knee.—The disease in this case commenced in the bursa, spread to the fatty tissue, and invading the internal semilunar cartilage, caused erosion of the upper surface of the tibia, as in Fig. 5. Resection was followed by a useful limb, although sinuses continued to discharge for some time.

Several cases which I have examined, and which seemed to me as having started in the infra-patellar pad, I omit, as, not having definite proof of the course taken by the disease, I could not set them down in the above list. In reference to early operative interference in cases of primary tuberculosis such as these, all I can definitely state is that synovitis is cured, extension of the disease prevented, and a sound movable limb produced. Recurrence may take place, but that is unfortunately possible after the most extensive operation.

In reference to these cases of arthrotomy, the rules which I laid down for myself when undertaking them were:—

1st. Make the incision or incisions in such position that arthrectomy can be carried out if necessary, or even complete resection if required.

2nd. The openings should be sufficiently free to allow of complete removal of diseased structures.

3rd. The incision should be in proper position to allow of free drainage.

Neglect of any of these precautions will lead to much delay, incomplete removal of diseased tissue, or generalisation of the tuberculosis. On this head Ollier says:—"The danger in such cases does not arise from opening the joints too much; it comes from not opening them sufficiently. The openings must be made sufficiently long and numerous, so that not a drop of septic liquid can accumulate in the cul-de-sac articulaire."

Arthrectomy, which some think should take the place of resection, unless in advanced bone disease, has not the support lent by numerous good results. Many of the recorded cases show that this operation should be limited to cases in which the disease is very well defined and bone disease, except superficial erosions,

absent. Instead of setting ourselves the profitless task (as writers are now doing) of trying to prove that arthrectomy, as against resection, should be the more general operation, we can best advance surgery and benefit our patients by studying—

1st. In what joints can erosion be carried out with success.

2nd. In what cases and at what stages is it indicated.

3rd. What conditions render resection necessary.

This done, and when individual operators have experience of many operations of both classes, we may answer the question, How do the operations stand when compared as to—

1st. The danger of the procedure?

2nd. The immediate result?

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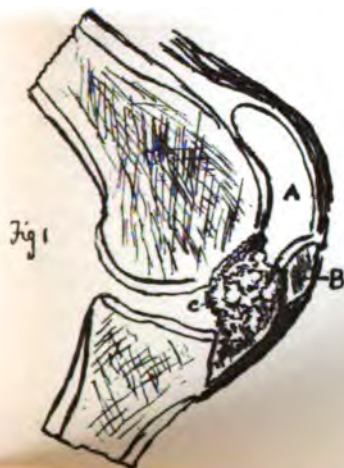
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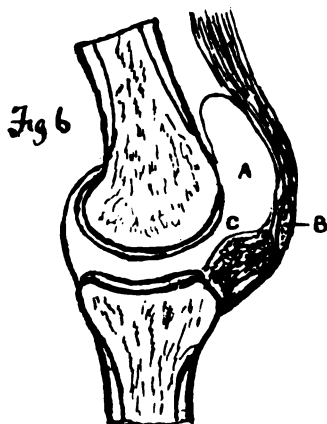
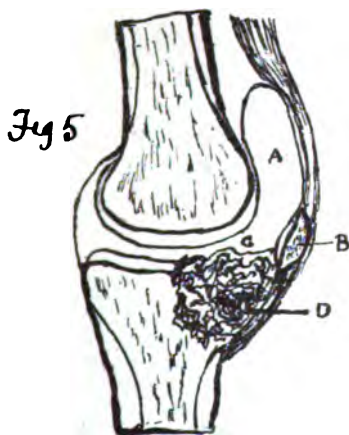
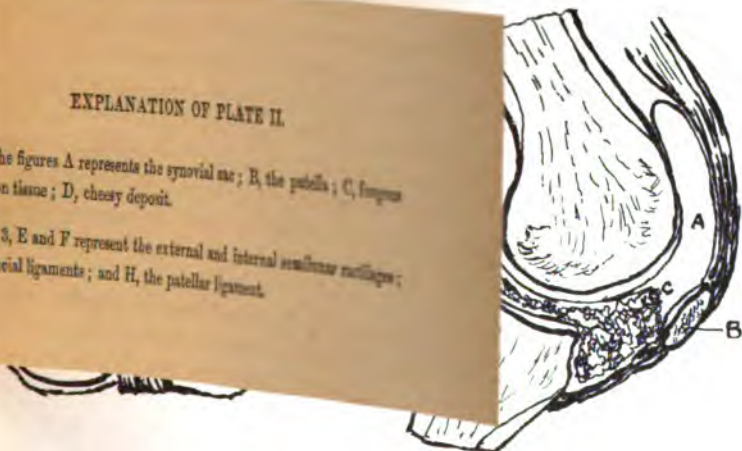
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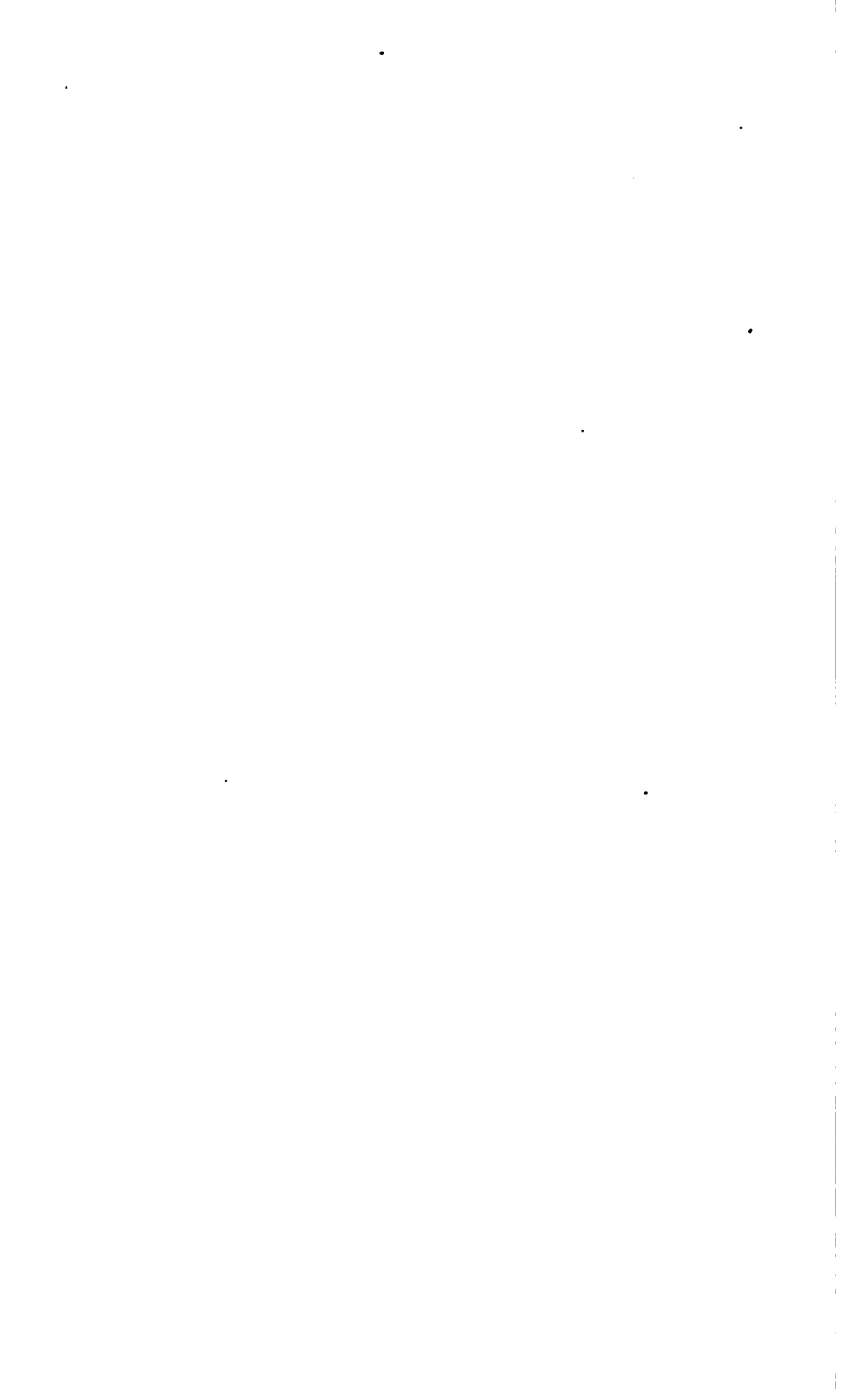


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In all the figures A represents the synovial sac; B, the patella; C, fungus granulation tissue; D, cheesy deposit.

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CASE V.—Resection of Knee.—The disease in this case commenced in the bursa, spread to the fatty tissue, and invading the internal semilunar cartilage, caused erosion of the upper surface of the tibia, as in Fig. 5. Resection was followed by a useful limb, although sinuses continued to discharge for some time.

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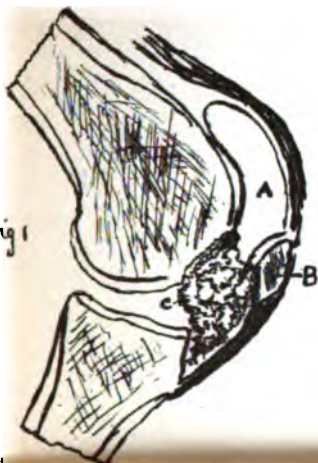


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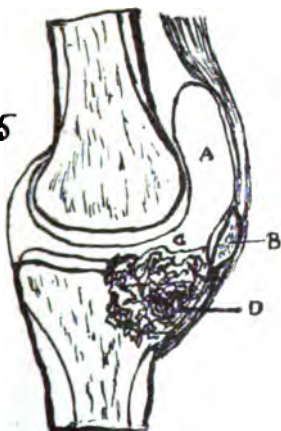
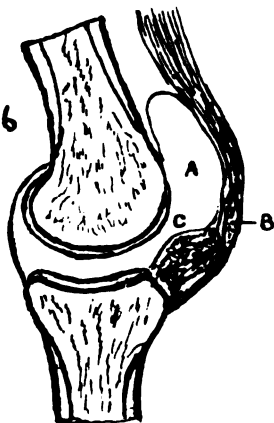


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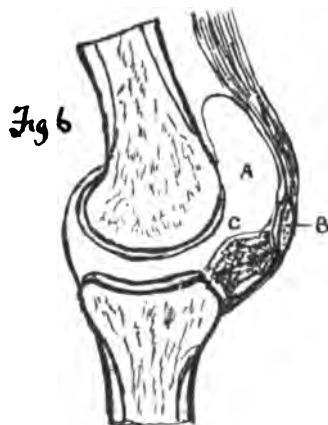
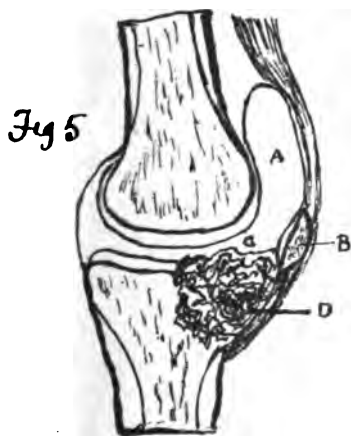
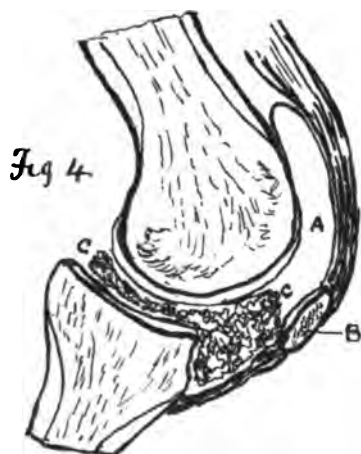
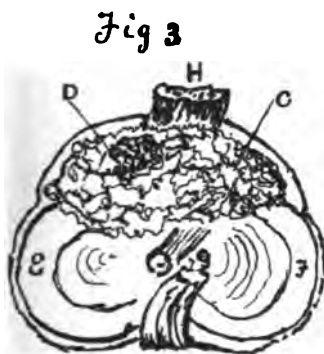
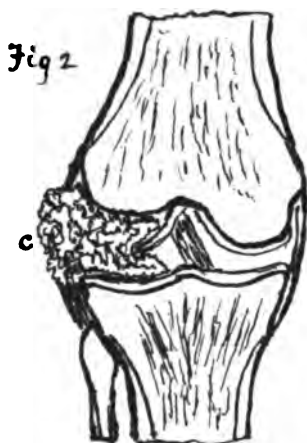
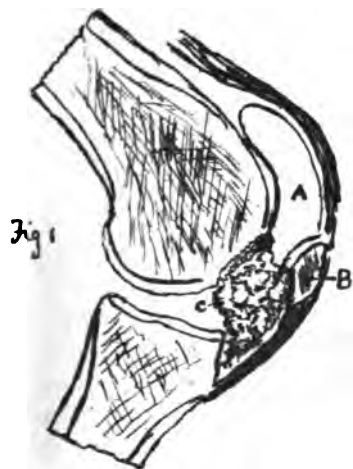
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rambled in her talk, insisted that she was quite well, and wanted to go home. Free stimulation was now employed, 12 ounces of whisky being administered. Digitalis was also given. On the following morning, Nov. 18th, the temperature had risen to 100.5° , following a rigor. On the morning of Nov. 21 (the 37th day) the temperature suddenly rose to 103.8° , but fell at night to normal. It rose again, however, and on the 24th it reached 103.6° . It soon fell to normal, but on Nov. 28 (the 46th day) it again rose to 102° . The final rise took place—to 103° —on Dec. 2 (the 50th day), and thence, with the exception of one rise to 100.8° , the temperature remained normal until convalescence was thoroughly established. Subsequent to the last hæmorrhage the bowels remained confined, and had to be opened by enema. A remarkable feature of this remarkable case was the occurrence, at an early stage, of a profuse subcuticular mottling, suggestive of typhus, but Prof. Cuming, who kindly saw the case with me, was of opinion that it was only an ill-defined intercurrent eruption, and this view was amply justified by the subsequent progress of the case. Following the subsidence of this subcuticular mottling, a profuse crop of sudamina appeared, and the patient presented an appearance recalling that of a case of small-pox.

From about Dec. 6 the patient steadily convalesced, no unpleasant symptoms remained, and she was finally discharged in good health upon Dec. 26, the 74th day from the commencement of the attack.

CASE II.—George M., aged thirty-four, was admitted to the Royal Hospital upon December 8, 1888. His temperature was 102° ; he complained of headache and pain in his joints; the tongue was furred and tremulous, and there was marked prostration. The history elicited was curious and somewhat misleading. The patient stated that he had been ill for ten weeks, and that his illness began with sore throat and headache. He did not take to bed, but continued to go about. About a month after the commencement of his illness he began to suffer from severe pains in the chest and arms, and from chills. He perspired very freely, and felt giddy, faint and nervous. The bowels were confined. His right knee now became swollen and painful, and he felt pains in the cardiac region, with shortness of breath. He was treated at this time for rheumatism with salicin, which he took for three weeks with some relief to his pains, but without any general improvement. He at length determined to seek admission to hospital, and came in upon December 8th, more than two months after the commencement of his illness. On my first examination I was inclined to regard the rheumatism as the essential feature of the case, but on making a second examination, and obtaining a more detailed history, I felt certain that something remained behind. The rheumatism was slight and showed signs of improvement, but the patient was very prostrate, and evidently in great danger. The

temperature at no time exceeded 103° , but there were delirium, tremor, and profound weakness. The only physical signs were a little crepitation at the bases of both lungs—rather more marked on the left side. There were a few doubtful spots on the abdomen, but no distension or tenderness on pressure, and the bowels were confined. In discussing the case with my clinical class, I said that the diagnosis lay between a low form of pneumonia and typhoid fever, and that of the two the latter was, on the whole, the more probable. On December 15 hæmorrhage from the bowel took place, thus establishing the diagnosis. Although the amount of blood lost was slight, the patient gradually sank and expired on the night of the 17th. My reading of this case would be that it was at the outset a mild case of typhoid fever, which, being neglected, relapsed, and that the rheumatism was secondary to the exanthem.

Let us look for a moment at the significance of the intestinal hæmorrhage in these two cases. In the first we have hæmorrhage supervening upon a sharp case of typhoid, attended by severe diarrhoea and an unusually high and continuous range of temperature. The hæmorrhage undoubtedly aggravated the case enormously, and death was for some days imminent. In the second case the hæmorrhage probably resulted from the patient continuing to go about and to partake of unsuitable food. It evidently aggravated a case that was already grave through neglect, and was the beginning of the end.

By the kind help of Dr. Mackisack, my house-physician, I have made an analysis of all the cases of typhoid fever which have occurred at the Royal Hospital during the past twelve months, and the result will throw some light upon the frequency and gravity of intestinal hæmorrhage. Including the two clinical histories given above, the cases number 30. Hæmorrhage took place in six instances (20 per cent.), and in two it proved fatal. The remaining cases—24 in number—in which no hæmorrhage occurred, all recovered. These figures are somewhat unusual. They show 30 cases treated, with 2 deaths—a mortality-rate of less than 7 per cent. The mortality from typhoid fever varies considerably; but taking the country as a whole, it is certainly not less than 15 per cent. The death-rate at the Royal Hospital during the past year has, therefore, been rather less than half the average. This record becomes still more remarkable when we find that both fatal cases were instances of relapse, and did not come into hospital sooner than the ninth or tenth week. As I have said, intestinal hæmorrhage occurred in 6 out of the 30 cases—a some-

what large proportion. Louis records 134 cases with hæmorrhage in 8 only, and Murchison calculates that it occurs to an appreciable extent only in from 3 to 4 per cent. of cases. All my cases in which hæmorrhage occurred were of unusual severity. Of the six, two died, two recovered after hope had been almost abandoned, and the remaining two were very sharp attacks. These facts show (as far as they go) that hæmorrhage is a very serious symptom, that it is not infrequently fatal, but that the most desperate cases may rally and make a perfect recovery.

It will be interesting to inquire in what class of cases hæmorrhage occurred, and at what stage of the attack. My cases support Murchison's statement that hæmorrhage is rare in childhood. The six cases were aged respectively 27, 34, 19, 29, 28, 26. Thus, the average age at which hæmorrhage occurred was 27, while the average age of the 24 cases in which there was no hæmorrhage was 18½ years. To put the facts in another light—only one of the hæmorrhagic cases was under 20 (19), while no less than 12 of the non-hæmorrhagic cases were under 20.

As regards the period at which the hæmorrhage occurred, the earliest was the 14th day; in two others it occurred for the first time upon the 19th day, in a fourth case upon the 20th day, and in the two remaining cases in the ninth or tenth week. It would appear that the later the hæmorrhage the more serious the prognosis. Thus the four cases in which the hæmorrhage occurred before the expiration of the third week all recovered, while the two remaining cases in which it occurred in the ninth or tenth week both died.

A word, finally, upon the treatment of intestinal hæmorrhage. I have always been accustomed to follow Murchison's instructions, and have given tannic acid, laudanum, and turpentine, with ice externally and ergotin by hypodermic injection. Some good authorities prefer to omit the turpentine, but I cannot say that I have ever seen any harm resulting from its use, and its power as a hæmostatic is undoubted. In one of my cases I gave laudanum pretty freely, in spite of the presence of albumen in the urine, and with good results—no sign of narcotism appearing. I am disposed to think that in intestinal hæmorrhage, as in hæmatocele and other forms of internal bleeding, opium may be given fearlessly, and pushed even to heroic doses. Stimulants are certainly required in some cases, but must be regulated with much caution.

In conclusion, let me say that while intestinal hæmorrhage in

typhoid fever is a serious symptom, it is by no means usually fatal, and prompt and decisive treatment is called for, and will often prove effectual.

ART. XVI.—*Note on an Epidemic of Erysipelas at Ferns, Co. Wexford, in 1887.** By G. E. J. GREENE, L.K.Q.C.P., L.R.C.S.I.; Medical Officer, Ferns District; Med. Att., Constab.; late Admiralty Surgeon, and Med. Att., Lightships and Constab., Kilmore, Co. Wexford.

My reason for bringing this subject under notice is not that I can authoritatively offer any new theory as to the ætiology of erysipelas, or that I have discovered a specific for its treatment, but simply to record a few facts which I have recently observed, as to the contagious character which the idiopathic variety of the disease occasionally assumes when of epidemic nature.

During the latter part of August, 1887, and during the four following months, Ferns and its surrounding district were visited by a severe epidemic of "idiopathic erysipelas," of a highly contagious nature, 45 persons being attacked within a radius of three miles. The disease usually affected one of two situations only—viz., either the head, face, and one side of neck; or the back and front of the chest on one side, with arm of same side as far as elbow. The latter, though the rarer, was by far the more fatal, from being invariably accompanied, after some days, by double pneumonia, whilst pleurisy sometimes further complicated the disease. Of nine cases affected as last described, seven succumbed from exhaustion at a period varying from seven to fourteen days. Of the remaining 36, in which the head was, as a rule, affected, all made a good recovery, notwithstanding that meningeal and lung complications generally were present. Further, two of these patients were over eighty years of age, and suffering from debility, three were children under five, and two were delicate females, the subjects of uterine disease; but of the seven who died in the first class, all, with one exception, were strong and healthy up to the period of infection, and none were under twenty-four or over forty-five years of age. With regard to the 36 patients, they do not require any special description, as the disease followed the

* Communicated to the Section of Medicine at the Glasgow Meeting of the British Medical Association in August, 1888.

ordinary course, but there are a few points concerning the nine others about which I should like to make passing mention.

In the first place, the stage of incubation never (as far as could be ascertained) exceeded, or was less than two days.

Secondly, intense pain along the course of the musculo-spiral and descending cervical nerves, in some instances coming on quite suddenly, was the first indication of the onset of the disease, there being in some cases inability to move the arm of the affected side—so much so that several of the patients were examined with the view of ascertaining whether a fracture or dislocation did not exist.

Thirdly, on the third day very extensive tumefaction, with intense tenderness on pressure, appeared simultaneously on the back and front of the chest, the pain abating somewhat, the condition of the parts now very much resembling a home-made cheese which has just been removed from the straining cloth. On the fourth day, or more rarely on the evening of the third, very small millet-shaped elevations of the cuticle around the hair follicles were plainly discernible, which on the following day appeared to be slightly increased in size, but gradually disappeared towards evening, or the following morning, without becoming vesicular. These elevations did not occur in the course of either the superficial or deep nerves, but were scattered in irregular patches at the margins of healthy skin.

Fourthly, in two instances only did the disease cross the mesial line, and then it did not extend beyond two inches in the one case and one and a half in the other.

Fifthly, pneumonia (which seems to me to be but the local manifestation in the lungs of the constitutional fever) was detected in every one of the nine cases at about the fourth or fifth day of the attack.

Sixthly, albumen was not found in the urine, but urea was increased in quantity, while the chlorides were diminished.

Now, as to the contagious character of the epidemic, I believe there is not the slightest doubt, as the following cases will show.

First, a man, twenty years of age, contracted it from his aunt, who went to his house, two miles distant from her own, without washing her hands or changing her apron, after dressing her daughter with flour.

Second, a neighbour, who would persist in going in and out to see him, took it, and, eventually, gave it to his wife, who died. In

the first three cases the head was the only part affected, but in the fourth, which proved fatal, the side of the chest was the seat of the disease. This observation may seem superfluous, but I introduce it here to show that the fatal form of the disease originated from the comparatively mild form, and *vice versa*, as some might be led to believe that the two forms were really different diseases and not the same affection modified by situation and the organ affected. I could cite many more examples, but the foregoing are, I think, sufficiently conclusive.

Dr. Bristowe mentions that even idiopathic erysipelas does, under certain conditions, become contagious, but he does not define those conditions or state *if under them* it is liable to become epidemic.

Druitt states that during an epidemic of erysipelas (whether traumatic or idiopathic is not defined) people within its range are liable to a kind of bilious fever. This I did not observe; but in the affected area, before the epidemic manifested itself, I noticed a good many patients suffered from enlargement and induration, in some cases going on into suppuration, of the inguinal, cervical, or axillary glands. None of these, however, subsequently took erysipelas.

With regard to the ætiology of the epidemic, as far as my experience goes, I am in favour of the idea that a couple of cases, having originated sporadically, gave off the germs of the disease from both the lungs and surface of the body. These germs, finding a condition of the atmosphere suitable, hygroscopically and otherwise, to their growth and development, or at least favourable to their vitality, coming in contact with the respiratory organs of those susceptible of their morbid influence, reproduced the disease. I found that the subjects of hepatic diseases were more prone to infection than those whose livers were healthy. In none of the cases cited was the disease of traumatic origin.

I have come to the following conclusions as to the value of certain drugs in the treatment of this disease. Tincture of the perchloride of iron was not satisfactory. Aconite and belladonna, in some cases, acted well, by aborting the attack, and curing the intercurrent pneumonia. Quinine proved useful when the pain was of a periodic character, and creasote when there existed much gastric trouble, but the latter drug produced great irritation when applied externally, as recommended by Dr. Fox, *St. Louis Medical Journal*. Acid tartrate of potassium, freely given at the onset, in

combination with jalap, and the application of flour warmed and browned topically, seemed to give most satisfactory results in simple, uncomplicated cases. Tincture of aconite, in one minim dose, every third hour, scored the greatest number of rapid cures, where pneumonic complications existed. Hazeline and Geddes' *Abies Canadensis*, as local applications, were very useful in allaying the pain and tingling. Nitrate of silver merely served as a mark for the estimation of the distance which the disease extended beyond it. Tincture of iodine and mercurial ointment alike produced a good deal of irritation, the latter in one instance giving rise to the constitutional symptoms of the drug without in any way affecting the course of the disease.

ART. XVII.—*Presidential Address in the Section of Anatomy and Physiology of the Royal Academy of Medicine in Ireland in the Session of 1888–89.* By AMBROSE BIRMINGHAM, M.B.

THE Royal Academy of Medicine—the offspring of a worthy parent—is still a young institution. This is but its seventh year, and this Section is consequently in its infancy, at least as regards age; still, it has done good work, of which its members may well feel proud. I cannot remember its earlier meetings, but on reference to the volumes of the “Transactions of the Academy” I find a record of sound and useful work in the departments of Anatomy and Physiology worthy of any scientific society. In them we have several able papers, some bearing the marks of close investigation and careful study, others, which show depth of thought and originality of idea in a marked degree, and many others still, full of interesting and important points. Amongst them are papers by Professor Cunningham, Dr. Brooks, Professor Purser, and Dr. Abraham, which may well fire the young scientist to attempt deeds of anatomical and physiological daring. I would mention particularly, on account of their originality and interest, Dr. Brooks' papers on muscle homology, and Professor Cunningham's on the sternalis, and also his work upon brain growth and relations. This latter is not only of anatomical interest, but is also of great practical importance at the present time, when such studies are being made in cerebral localisation and in brain surgery.

There is another class of papers to which I would call attention, in the hope that we may hear many of them read in the future. I refer to records of careful observations extending over a consi-

derable period, made in the dissecting-room, upon the anatomy of some particular structure, such as is Dr. Brooks' paper on the origin of the phrenic nerve—a paper which I have read with the greatest interest and benefit. This kind of work may be carried on by most anatomical demonstrators and professors without too great a demand upon their time.

Since the Academy was established, over six years ago, a considerable number of papers have been read in this Section; but on looking over the names of the authors I find that in these six years there have been but ten different contributors to the Section. This number certainly is not as large as it should be, considering the fact that there are five medical schools in Dublin, each of which has at least one anatomist and one physiologist. Of course the reason is that medical teaching is so much scattered in Dublin (and as a result of this the remuneration of most teachers is so small) that few men can devote themselves thoroughly and earnestly to the scientific study of either anatomy or physiology alone. It is very difficult doubtlessly for those engaged in practice, and who hold hospital or other appointments, to do much special work in anatomy; still, it is not impossible, as shown by the excellent work of Mr. Treves, of London, both in surgery and in anatomy, and also of Professor Humphry in the same subjects. Other examples might be given, but certainly they are the exceptions. Although many of us who are engaged in anatomical or physiological teaching, whether as demonstrators or professors, cannot afford to devote much time to elaborate investigations, still, I believe that we can, by a little careful observation on special points, continued over a winter session, produce papers which shall be at least of some—perhaps of great—interest to the members of the Academy. But some will urge—why take all this trouble with anatomy; we are teachers of the subject, but we only use our position simply as a stepping-stone to help us to some other appointment? My answer (speaking from a very limited experience) is, the work will repay you in two ways—first, by increasing your knowledge and your powers of accurate observation; and, secondly, by the pleasure which you shall derive from the pursuit of science. At least such, I feel, have been the results of any little anatomical work which I have attempted, and such were the inducements held out by a senior friend when he suggested to me the investigation of a special point, which afterwards formed the subject of my first paper before this Section.

And here I wish to express my gratitude to some of the more advanced anatomists, whom I see here to-night, for their kind assistance and encouraging words, which have been to me the greatest stimulus in the study of my subject.

Naturally I am chiefly interested in anatomy; but, as President of the Anatomical and Physiological Section, I feel that I may refer to the amount of physiological work done here. To me it seems that the Section is becoming decidedly anatomical in character, even more so than we selfish anatomists desire; and I am sure that I am joined by you, gentlemen, in expressing a hope that in the time to come we may more frequently have an opportunity of listening to, and of being instructed by, papers from some of the distinguished physiologists who are numbered amongst the Fellows of the Academy.

One word more before I leave this part of my address:—The meetings of the Anatomical and Physiological Section are often badly attended. Considering the fact that the Section meets but twice a year, it might be expected that all those who are, or who ought to be, interested in anatomy and physiology, would attend almost as a matter of duty, if not of pleasure, on these few occasions. Yet I have been surprised to see that of those whose names appear on the prospectuses of the various schools in the city as demonstrators of anatomy or physiology, and of those who earn their livelihood largely by teaching these subjects, so few attend the meeting of this division of the Academy. It would be well if we could change this, if we could import more scientific interest into the working of these subjects. Surely, it is not too much to expect that upon two nights of the year the anatomical and physiological professors, assistants, and teachers, should assemble and support their Section. I earnestly trust—and in this I know I am not alone—that our meetings shall for the future be more representative in number of the anatomical and physiological strength of the Dublin schools than they have hitherto been.

[The remainder of the Address was devoted to a consideration of "The Factors which determine the Formation of Abnormal Muscles in the Body."]

ART. XVIII.—*Anæsthetics.* By GEORGE M. FOY, F.R.C.S.I.;
Surgeon to the Whitworth Hospital, Drumcondra.

(Continued from p. 238.)

THE many deaths occurring during the administration of anæsthetics caused the Royal Medico-Chirurgical Society to appoint a Committee "To inquire into the Uses and the Physiological, Therapeutical, and Toxical Effect of Chloroform, as well as into the best mode of administering it, and of obviating any ill consequences resulting from its administration." The members were—J. B. Curling (Chairman), Thomas Bryant, Samuel Cartwright, Arthur Farre, George G. Gascoyen, George Harley, Prescott Hewett, F. W. Mackenzie, William Marcet, Charles H. Moore, James Paget, William O. Priestley, Richard Quain, Francis Sibson, R. Dundas Thompson, Charles West; Septimus W. Sibley, George W. Callender, Reporters; John Birkett, Hon. Secretary.

"Mr. Clover, though not a member of the Committee, attended, at their request, nearly all the meetings for experiments, administered the chloroform, and continued to employ, from time to time, with remarkable ingenuity, special apparatus for carrying them on."*

The Committee collected a great number of facts, and made many valuable suggestions for the guidance of anæsthetists. The Report was presented on the 14th of June, 1864, and it was read on the 5th of the following July. It occupies one hundred pages of the Transactions for that year, and as the suggestions are, after a lapse of twenty-five years, little known to the younger members of the profession, they bear re-telling:—

"RULES RELATING TO THE ADMINISTRATION OF CHLOROFORM.

"Chloroform should on no account be given carelessly, or by the inexperienced; and when complete insensibility is desired, the attention of its administrator should be exclusively confined to the duty he has undertaken.

"Under no circumstances is it desirable for a person to give chloroform by himself.

"It is not advisable to give an anæsthetic after a long fast, or soon after a meal, the best time for its administration being three or four hours after food has been taken.

"If the patient is much depressed there is no objection to his

* Transactions, Medico-Chirurgical Soc., Vol. XXIII.

taking a small quantity of brandy, wine, or ammonia, before commencing the inhalation.

“Provision for the free admission of air during the patient's narcotism is absolutely necessary.

“The recumbent position of the patient is preferable, the prone position is inconvenient to the administrator, but entails no extra danger. In the erect or sitting posture there is no danger from syncope. Sudden elevation or turning of the body should be avoided.”

[Respiration cannot be as freely carried on in the prone position as in the recumbent, and every impediment to respiration increases the danger of chloroform or other narcosis, therefore the prone position should never be adopted except in cases of necessity.]

“An apparatus is not essential to safety if due care be taken in giving the anæsthetic. Free admixture of air with the anæsthetic is of the first importance, and, guaranteeing this, any apparatus may be employed.

“If lint, or a handkerchief, or a napkin is used, it should be folded as an open cone, or held an inch or an inch and a half from the face.

“Chloroform should invariably be given slowly; sudden increase of the anæsthetic is most dangerous. Three and a half per cent. is the average amount, and four and a half per cent., with ninety-five and a half per cent. of atmospheric air, is the maximum of the anæsthetic which can be required. Given cautiously at first, the quantity within this limit should be slowly increased according to the necessities of the case, the administrator being guided more by its effect on the patient than by the amount exhibited.

“The administrator should watch the respiration of his patient, and must keep one hand free for careful observation of the pulse.

“The pulse of the temporal artery answers all purposes as well as that of the radial, and is much more convenient for the chloroformist.

“The patient who appears likely to vomit whilst beginning to inhale the anæsthetic, must be at once brought fully under its influence, and the tendency to sickness will then cease.”

[Where there is reason to suppose that the stomach contains food, the usual rule is to turn the patient on his side to facilitate the ejection of the vomit, and thus avoid the risk of food entering the air passage.]

"The occurrence, during the administration of an anæsthetic, of sudden pallor, or sudden lividity of the patient's countenance, or sudden failure or flickering of the pulse, or feeble or shallow respirations, indicates danger, and necessitates immediate withdrawal of the anæsthetic until such symptoms have disappeared.

"On the occurrence of these symptoms, and especially if they should become so urgent as to threaten death from failure of respiration or of heart action, or of both together, the following rules of treatment are to be observed:—Allow free access of fresh air, pull forward the tongue and clear the mouth and fauces, keep or place the patient recumbent, dash cold water on the face and chest, and aid the respiratory movements by rhythmical compression of the thorax. In the more threatening cases commence instantly with artificial respiration, whether the respiration has failed alone, or the pulse and the respiration together.

"Galvanism may be used in addition to artificial respiration, but the artificial respiration is on no account to be delayed or suspended in order that galvanism may be tried.

"Few, if any, persons are insusceptible of the influence of chloroform, from two to ten minutes being required to produce anæsthesia. The time, however, varies with age, temperament, and habits."

Of the uses of chloroform in surgical operations the Committee report that, "With heart disease the anæsthetic may be given in any case which requires an operation, although when there is evidence of a fatty, weak, or diluted heart, great caution is demanded; valvular disease is of less importance.

"In phthisis, when an operation is unavoidable, anæsthetics may be given with impunity.

"For all operations upon the jaws and teeth, the lips, cheeks, and tongue, anæsthetics may be inhaled with ordinary safety. By care and good management the patient may be kept under their influence to the completion of the operation. In all these cases blood, as it escapes, if not voided by the mouth, passes into the pharynx. If any small quantity finds its way through the larynx, it is readily expelled by coughing. In operations on the soft palate, fauces, pharynx, and posterior nares, if sudden or severe hæmorrhage is likely to occur, it is not advisable to induce deep insensibility. In cases requiring laryngotomy and tracheotomy anæsthetics may be employed with safety and advantage."

"For operations upon the eye, involving the contents of the

globe, the use of anæsthetics is open to objection, on account of the damage which the eye may sustain from muscular strain or vomiting. If employed profound insensibility should be induced.

"In operations for hernia, and in the application of the taxis, anæsthetics act most beneficially. For most operations about the anus profound anæsthesia is positively demanded.

"In the condition of shock, or of great depression, as after hæmorrhage, the careful administration of anæsthetics diminishes the risk of an operation."

They concluded that:—

"Chloroform at first increases the force of the heart's action—this effect is slight and transient.

"When complete anæsthesia is produced by chloroform, the heart in all cases acts with less than its natural force.

"The strongest doses of chloroform vapour, when admitted freely into the lungs, destroy animal life by arresting the action of the heart.

"By moderate doses of chloroform the heart's action is much weakened for some time before death ensues; respiration generally, but not invariably, ceases before the action of the heart, and death is due both to the failure of the heart's action and to that of the respiratory function.

"The danger attending the use of chloroform increases with the degree of stupor it induces.

"Apparent irregularities in the action of chloroform depend on the varying strength of the vapours employed, on the quality of the chloroform, and on the constitution of the patient."

They recommended, as preferable to either chloroform or ether, the following mixtures, to wit:—

	A.	Alcohol,	sp. gr.	838,	1 part.
		Chloroform,	sp. gr.	735,	2 parts.
		Ether,	sp. gr.	1,497,	3 parts.
Mix.					
	B.	Chloroform,	-	-	7 parts.
		Ether,	-	-	4 parts.
Mix.					
	C.	Chloroform,	-	-	1 part.
		Ether,	-	-	2 parts.
Mix.					

The first mixture, which quickly became known as the "A. C. E.

mixture," was from a well-known formula of Dr. Harley's, and the formula B. and C. were similar to some in use in America.

The Committee arrived at the conclusion "that a mixture of ether and chloroform, such as A. or C., is as effective as pure chloroform, and a safer agent when deep and prolonged anæsthesia is to be induced, while at the same time it is sufficiently rapid in its operation to be convenient for general use."

It is a strange comment on this recommendation to find that operative surgeons still prefer to use either chloroform or ether in an undiluted state. The statistics of St. Bartholomew's Hospital for the years 1885, 1886, and 1887, show that not one of the mixtures recommended were once used during the three years, although in 1885—

Chloroform was administered	-	-	1,331 times
Nitrous Oxide Gas (alone)	-	-	378 "
Ether (alone)	-	-	1,118 "
Ether, preceded by Nitrous Oxide Gas	-	-	386 "

Making a total of 3,213 cases of anæsthetic administration, and not one death. In 1886—

Chloroform was administered	-	-	1,425 times
Gas	-	-	385 "
Ether	-	-	1,109 "
Gas and Ether	-	-	567 "

Making a total of 3,486 times. One death occurred during the administration of chloroform—the patient had a suppurating kidney, he was "seized with syncope before anæsthesia was complete, and died in a few minutes." In 1887—

Chloroform was administered	-	-	1,702 times
Gas	-	-	415 "
Ether	-	-	1,197 "
Gas and Ether	-	-	662 "

Total number, 3,976. One death, that of a man aged fifty two, in whom the *post-mortem* presented a fatty heart. He was suffering from cellulitis of the leg.

In the three years chloroform was administered 4,458 times out of 10,675 anæsthetic administrations in St. Bartholomew's Hospital.

The Committee appointed by the British Medical Association in December, 1880, made a report on anæsthetics, and many cases of death during the administration of anæsthetics collected by them were clearly proven to be due to either carelessness or ignorance, and

in some cases both carelessness and ignorance were in evidence. The report appears in the issue of the *British Medical Journal*, for the 15th of December, 1880, and its practical outcome was—a strong condemnation of chloroform, a partial condemnation of ether, and a strong recommendation of the dichloride of ethidene—an anæsthetic which to-day is practically unknown to the profession, and which has not been once used in the ten thousand odd cases noted above.

Independent workers also were not idle, our principal home and foreign journals tell of their industry, and to them we are principally indebted for our modern views on the physiological action of anæsthetics, and the best means for avoiding danger during their use. The literature of the subject is enormous—the Index Catalogue of the Library of the Surgeon-General of the U. S. A. Army includes sixteen hundred odd newspaper articles on chloroform alone.

All compounds of the monatomic fatty alcohols—which include chloroform, ether, and alcohol—act in the same way. Chloroform, however, differs from both alcohol and ether by its more paralyzing influence on the heart—a property which is peculiarly well-marked in all the halogen anæsthetics, and is not peculiar to chloroform. But it is peculiar to the chloroform group of anæsthetics that the respiratory centre is the last of all the parts of the central nervous system to be deprived of sensibility. Its effects on the central nervous system consist in the paralysis of the brain, spinal cord, and medulla oblongata; and the parts are affected in the order named.

The monatomic fatty alcohols differ essentially in their action from morphin, in that from the very first they lessen and finally abolish reflex action, whilst morphin increases the reflex irritability of the central nervous system, as is occasionally demonstrated by tetanus occurring in cases of opium poisoning.

It is claimed for ether that it does not exert the same influence as chloroform on the heart, neither does it lower the vascular *tonus* to the same extent.

Of chloroform it is also stated that its continued use tends to produce fatty degeneration of the heart—a statement not supported by some recent experiments which were conducted in India,* and one not in accord with clinical experience. Chloroform exerts a marked influence on the blood pressure, but how it lessens it to the extent it does is not exactly known; it paralyzes the nervous centres for the vessels, produces dilatation, but the great dilatation is believed

* *Lancet*, February, 1887.

to be in part due to the direct action of the anæsthetic on either the muscular tissue or nerve ends in the walls of the arterioles.

Dr. Brunton quotes from *The Practitioner* Prevost's experiment, showing the influence of chloroform when directly applied to the nerve tissue, to wit:—"Chloroform applied directly to the brain of a frog narcotises it when the aorta is tied. When the aorta is again unligatured, so that the current of blood can again wash the chloroform away, the narcosis disappears."^a

Four stages are recognised in the action of anæsthetics—the stimulant stage, the narcotic stage, the anæsthetic stage, and the paralytic stage.

The third stage is the one in which operations may be safely undertaken: during the second stage all the reflexes are not abolished, and shock from the operation is superadded to the risk of a low arterial *tonus*. In the third stage, all the reflexes being paralysed, there is no shock, and the sole risk may be said to be the low blood pressure.

Clinically the third may be distinguished from the second stage by the cessation of struggling and delirium, should either be present, and the absence of reflex on touching the palpebral and sclerotic conjunctivæ.

The fourth, or paralytic stage, is that in which the respiratory centre is paralysed, respiration ceases, and the pulse becomes very feeble.

During anæsthesia the brain becomes anæmic. Nélaton, in 1855, remarked that the brain of a rat became markedly anæmic whilst the animal was under chloroform anæsthesia, and he remarked that when in the paralytic stage, and respiration had ceased, that suspension of the animal by the tail with its head down restored respiration, and the heart resumed its normal action, whilst another rat in the condition-stage of anæsthesia, left lying on the table, died. This observation has been turned to practical account, as the following cases of Dr. Julian J. Chisolm,^b of Baltimore, Maryland, show, who also suggests that the good result obtained may be in part due to the emptying of the blood from the great reservoir, the liver, through the vena cava into the cavities of the heart, stimulating them into renewed activity. In Dr. Chisolm's pamphlet,^c

^a Pharmacology. Third Edition. 1887. P. 206.

^b Chloroform: the Best of Anæsthetics. 1888.

^c A Very Valuable Lesson for those who Use Anæsthetics. A Paper read before the Baltimore Academy of Medicine, Dec. 6th, 1887.

the following cases are selected as typical of the value of the inversion method, when the anæsthesia may unfortunately have reached the paralytic stage:—

“R. A., a robust, healthy child, three years of age, was recently brought to me with a cancerous left eye. The attention of the parents was first called to the yellow appearance of the pupil eighteen months before. The gliomatous mass filled the vitreous cavity, distending the pupil, and obliterating the anterior chamber; the left eye was injected and painful. The prompt removal of the eyeball was urged as the only means of protecting the child from a painful death. The operation was accepted by the parents, and enucleation, under chloroform, accomplished after much difficulty. . . .

“The child was suffering from a bronchial trouble, but that was not deemed an obstacle to the administration of an anæsthetic. The patient was placed on the operating table, his clothing loosened about the neck and chest, and chloroform was inhaled from a towel, folded in a conical form, with open top; deep sleep was soon induced.

“When the anæsthesia was complete, the operation for the removal of the diseased eye was commenced. The conjunctiva was divided around the cornea, and the tendon of the external rectus muscle was sought for, when respiration suddenly ceased, the face assumed a death-like pallor, the pulse disappearing at the same time from the wrist. Immediately the child was suspended by the feet, with body and head hanging down at an inclination of seventy degrees, while an assistant volunteered chest-compression for artificial respiration. After a few minutes, signs of a feeble respiratory movement was noticed, a slight throbbing of the neck-vessels was detected, and in time the child evinced its return to consciousness by crying. He was laid on the table, but would not permit the eye to be touched without a twist of the head, evincing great irritability or sensitiveness of the conjunctiva. As the operation had to be completed, I ordered chloroform to be again administered. Chloroform narcosis was very soon re-established, but before I had time to resume the operation the child again stopped breathing, and the pulse disappeared. The body, apparently of a dead child, was once more hung up by the feet, so as to allow blood to gravitate towards the anæmic head and brain, but with no further attempts at artificial respiration. Myself and four assistants watched anxiously the pale face, to catch the first evidence of

returning vitality. After some minutes I noticed that the large vessels at the root of the neck showed some fulness, then a slight thrill, and after this the first attempt at a thoracic movement appeared. In ten minutes breathing was sufficiently strong to allow the child to cry again, much to the relief of all of us.

"Still the operation which was so imperatively called for, for the future safety of the child—even the saving of its life from the ravages of cancer—was uncompleted. While the father and mother—both present in the operating room—were pleading for their child, they were made aware, by the restlessness of the patient when the eye was touched, that nothing could be done without the child going again to sleep, so I once more ordered the inhalation of chloroform. For the third time chloroform narcosis was promptly established, and was followed very soon afterwards by suspended respiration and the disappearance of the pulse. Death now seemed to be complete; immediately the child was hung up by the feet. The absolute quiet of the operating room was broken only by the lamentations of the parents. All eyes watched the face of the child; five minutes seemed an hour, and the ashy lips showed, so far, no response. Soon after this a faint effort at respiration was observed—which became stronger with each return of the thoracic movements—and the pulse was again felt feebly at the wrist. When respiration seemed established, complete insensibility continuing, I had the child laid on the operating table. As soon as the body assumed the horizontal position, the pulse, not yet strong, disappeared from the wrist, and the respiration ceased, necessitating at once a renewal of the suspension. This curious phenomenon of breathing when suspended, and becoming inanimate when the prone position was too early assumed, was repeated two or three times respectively. For safety—for I was afraid to lay the child down—I was forced to enucleate the eye while the child was suspended with head downwards, an awkward position for operating. It was some time—fully a quarter of an hour—after the operation was completed and the eye bandaged, before I could trust the child in the recumbent position."

The second case is as follows :—

"Eighteen months since I ordered chloroform to be administered to a patient eighty years of age, who had his right ear a mass of epithelioma. . . . His history, as given by himself, was quite a curious one of coincidences. He had been married twice; his first wife had a

cancer of the breast, for which an operation had been recommended by his family physician; she died under chloroform before any incisions were made. His second wife was brought to me six years ago, suffering from a malignant disease of the socket, involving the eyeball, the eyelids, and skin of cheek. . . .

"I declined to operate. . . . Against my advice, the local physicians urged the operation, and in her anxiety to get rid of the cancer, she yielded to their solicitations. They undertook it, and she died during the operation—they said from the effects of chloroform. There was no blood relationship between himself and either of his two wives, and yet he also had a cancer for which an operation under chloroform was advised. . . . In his desire to get rid of the foetid discharge he submitted, without hesitation, to the course recommended. First a full dose of whisky was taken, and then chloroform was administered by the resident physician of the hospital, aided by the medical staff. I had left the operating room for a few minutes to show to a medical visitor some cases of interest in the wards, when the nurse ran to inform me that the man whom I had just left was dead. . . . I found one of the physicians trying thoracic compression for artificial respiration on an apparently lifeless body lying flat on the operation table. I had this immediately stopped, and under instructions the four doctors present, with the nurse and the brother of the patient, held up the lower end of the operating table, so as to incline the body and head at an angle of over forty-five degrees. . . . In a very few minutes we had the satisfaction of seeing slight thoracic movements; then the ashy, livid face lost its death-like hue. When respiration became fully re-established the table was lowered, and the operation safely completed, no more chloroform being required in the case."

The combination of morphin and chloroform in preference to chloroform alone was once strongly advocated. Dr. Alexander Crombil,^a Surgeon to the Calcutta Medical College Hospital from 1873, writing in 1881, says: "It has never been my misfortune to see a death from chloroform," and ascribes his success to the combined use of morphin and chloroform. He recommends an hypodermic of morphin to be given immediately before the administration of chloroform. The combined use was due to an observation of Claude Bernard's.^b He had occasion to administer a

^a Practitioner. Vol. XXV., p. 401.

^b Revue des Cours Scientifique, and Bulletin Général Thérapeutique, 30th Sept. 1869, p. 241. Journal of Anatomy and Physiology. Vol. IV., p. 166.

dose of morphin to a dog recovering from the effects of chloroform, and he was surprised to find that the morphin reproduced the anæsthetic effects of the previous dose of chloroform. More recently this experiment was modified, so that a dog narcotised by morphin was completely and quickly anæsthetised by a quantity of chloroform very much smaller than would have been necessary to have produced this effect in a dog in a normal condition. Bernard believes that this can be explained only by supposing that the action of one substance superimposed on that of the other. Morphin, by blunting the nervous sensibility, aids the action of the chloroform, and thus a quantity of the latter, in itself insufficient to produce complete anæsthesia, becomes sufficient to do so when assisted by morphin. The practice, however, fell into disrepute, and is rarely resorted to at present.

The most frequent cause of death from chloroform is incomplete anæsthesia.

A very valuable article by Dr. Sydney Ringer^a shows how little capable of supporting shock the heart is during anæsthesia:—“When under chloroform a heart is greatly weakened, almost to the point of arrest.” Of the different effects of ether and chloroform on the heart he thus expresses himself:^b—“One or two minims of chloroform rapidly weakens and arrests the ventricle, even fifty minims of anhydrous ether merely accelerates the beats and weakens them a little. Chloroform arrests the heart in diastole.”

The danger of imperfect anæsthesia is thus graphically described by Dr. Lauder Brunton:^c—“A very large proportion of the deaths from chloroform occur during the extraction of teeth, and we may take this action as a typical one in regard to the mode of action, both of the sensory irritation and of the chloroform. When a tooth is extracted in a waking person, the irritation of the sensory nerve produced by the operation has two effects—1st, it may, acting reflexly through the vagus, cause stoppage of the heart and a consequent tendency to syncope; 2nd, it causes reflex contraction of the arterioles, which tends to raise the blood-pressure, and counteract any tendency to syncope which the action of the vagus might have produced.

“In complete anæsthesia all these reflexes are paralysed, and thus irritation of the sensory nerves by the extraction of the teeth

^a Practitioner. Vol. XXVI., p. 40.

^b Practitioner. Vol. XXVII, p. 16.

^c Pharmacology. 3rd Edition. 1887.

has no effect either upon the *vagus* or the arterioles. In imperfect anæsthesia, however, the reflex centres for the arterioles may be paralysed, while the *vagus* centre is still unaffected."

Next in frequency as a cause of death during anæsthesia, is the administration of too concentrated a vapour. Great quantities of chloroform enter the blood, and get into the left side of the heart. the latter suddenly ceases to act, and death results before deep narcosis has been reached. Happily this accident is becoming more rare. It has been my lot to see such a case occur, but with our present knowledge of the action of the anæsthetic the accident should never occur, and is easily avoided.

"In giving chloroform care must always be taken that the vapour be inhaled only after being sufficiently *diluted with air*, so that the chloroform passes the left side of the heart in small quantities, and finds time to diffuse itself uniformly in the body." *

(*To be continued*).

ART. XIX.—*The Prevention of Laceration of the Perinæum in Primiparæ.*^b By DAVID P. GAUSSEN, M.D, M.R.C.S., Eng.

THE comparative frequency with which laceration of the perinæum, to a greater or lesser extent, takes place in primiparæ when the labour is left to nature, and the great amount of discomfort, and even of disease, which a neglected rupture causes to its unfortunate recipient, even if she escape the immediate danger of septicæmia, are my excuse for shortly bringing forward a method of prevention which, after more than three years' trial, I have found very successful.

When I began practice I was surprised to find that in the great majority of primiparæ cases which I attended perinæal laceration, sometimes to a very considerable extent, took place, even though I faithfully tried to carry out the means usually recommended in text-books for its prevention.

Knowing that, "*ceteris paribus*," the cause of laceration is over-distension, I plainly saw that the remedy lay in reducing the necessary perinæal distension caused by the birth of the foetal head to a minimum.

Text-books tell us that towards the end of the first stage of labour the occiput of the foetal head descends along the anterior

* Schmiedeberg's *Elements of Pharmacology*. 1887. P. 80.

^b Read before the Ulster Medical Society, on Wednesday evening, Feb. 27th, 1889.

pelvic wall, and that flexion continues till it engages between the pubic rami, at which time the resistance of the anterior bony wall being no longer felt, extension takes place and the surface of the child's head glides forward on the perinæum. Now, this is perfectly true, and yet I know, from careful personal observation, that in the great majority of primiparæ, the occiput, even though well down behind the pubic rami, carries along with it the constricted, and only slowly yielding, though elastic, tissues, which form the vulval orifice, and that the anterior bony resistance being thus removed, extension takes place, and the head is born before the occiput has got clear of the vulval orifice, the result being that the perinæum is exposed successively to the occipito-frontal diameter, which is $4\frac{1}{4}$ in., and the occipito-mental diameter, which is $5\frac{1}{4}$ in. These are the largest diameters of the fœtal cranium, and the distending force being therefore a maximum, the chances of rupture of the perinæum are correspondingly increased.

The means of prevention which I recommend are very simple, they are in a few words:—Maintain *forced flexion* of the head, until the whole occiput is born, and the back of the neck distinctly felt outside the vulval orifice, and then let extension take place and the head be born. This is best accomplished in the following way:—As the perinæum and vulval orifice are dilating and the head is about to be born, grasp the occiput with the fingers of the right hand, drawing it down with them, while with the thumb of the same hand push the frontal part upwards and backwards in the direction of the sacrum. As the vulval orifice dilates more and more, continue the movement, and at the same time, with the fingers of the left hand, draw well up off the occiput the tissues forming the orifice, which will be found to descend more or less on it and with it, and thus maintain the head in a condition of forced flexion, until the whole occiput rests in the hollow of the right hand and the back of the neck can be felt, quite clear, with the fingers; then let extension take place and the head be born. By this means the vulval orifice and perinæum are only exposed to the sub-occipito-frontal diameter, and the sub-occipito-mental diameter, which is $3\frac{3}{4}$ in. These are the smallest diameters of the fœtal cranium. The great advantage of having the head born in a condition of complete flexion is thus apparent, and it becomes even more so when we consider that the maximal circumference of the flexed head is 13 in., while that of one measured about the extremities of the occipito-frontal diameter is $14\frac{1}{2}$ in. Thus, in the

flexed position the distending force is reduced to the least possible, being $1\frac{1}{2}$ in. less than that in the extended position, and, therefore, all things being equal, the chances of perinæal rupture are reduced to a minimum. Of course, a great aid to this method, as it must be to every similar method, is to prevent the too rapid expulsion of the fœtus; and, therefore, if the pains are very strong, the patient should be encouraged to cry out, and, as far as possible, to cease from "bearing down" during those which immediately precede the birth of the child.

Any form of support of the perinæum is, I think, injurious, except in very exceptional cases.

The same principle—viz., that of forced flexion—can be carried out with equal, if not greater, facility in those cases in which, from any cause, the use of the forceps is indicated, in the following manner:—The forceps being applied, instead of drawing the handles forwards and upwards towards the abdomen when the occiput is being born, as is usually recommended, draw them downwards and a little backwards, holding them in this position with the left hand, till with the right hand the occiput has been completely cleared of the vulval orifice; then promote extension by raising the handles towards the abdomen, and the head is born with the least possible amount of distension.

This method of using the forceps is recommended by Professor Temple, of Toronto, in a communication to the *Brit. Med. Journal*, Jan. 30th, 1886, in which he draws attention to a short paper which I had written on the subject in the same journal a few weeks previously, and since then I have had a considerable number of opportunities of testing it, and in every case in which I tried it the result has been most successful, no laceration having occurred, even of the delicate mucous membrane forming the vulval orifice. During the last three years I have, in all, attended somewhat over thirty cases of primiparæ; in two only have slight ruptures taken place; in one the umbilical cord was tightly wound round the child's neck several times, so that it literally hung by it, and proper flexion could not, therefore, be maintained; in the other I arrived rather late on the scene, and the pains being very strong, the head was forced through the vulvæ before I could get the occiput properly cleared. In neither case was proper flexion fully maintained, and in both cases, therefore, the perinæum was distended to a greater extent than was absolutely necessary, and a slight rupture was the result.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Prevention of Disease in Tropical and Sub-Tropical Campaigns. By ANDREW DUNCAN, M.D., B.S. Lond.; F.R.C.S.; Surgeon Bengal Army. London: J. & A. Churchill. 1888. Pp. 396.

THIS volume is a revised edition of the work which gained the Parke Memorial Prize for 1886. It is a most excellent compilation, indispensable to the medical officer on active service in tropical and sub-tropical climates or elsewhere. It is very much to be regretted that it is marred by misprints and slovenliness of expression which might easily have been avoided. It would not have needed Macaulay's phenomenal schoolboy to correct such errors as "gymphana"—twice in three lines—or "Rawal Pindi Tail," or to translate into English such phrases as "the bowel affections became so rife that the sick had to be evacuated;" "the *mauvaises odeurs* were profound and searching, and it was apparently no one's business to look after them;" "let animal food be in part substituted by vegetables;" "oil of petroleum;" "nor is it likely to." Nor can we think it shows much knowledge of modern anthropology to post in the fore-front of the work a long quotation from Trousseau on acclimatisation, of which let this be sufficient sample—"The first individual of our species did not assuredly come into existence in latitude 50°. His body not being protected by hair or feathers, like other animals of the higher classes, proves that the Creator called him into being in a climate sufficiently mild to enable him to dispense with clothes, which in our climate are absolute necessities." And now, having got our fault-finding over, we shall proceed to notice a few of the more interesting chapters of Dr. Duncan's valuable work.

Let us begin with supplying a little nut for the total abstainers to crack—an illustration of the value of properly-handled statistics. The passage reads like an extract from *Through the Looking-*

glass adapted to medical readers.* In 1874-75 the "Sunjhi-ujong" expedition started from Singapore. The account in the text is not very clear; but, at any rate, the medical officer reported that a temperate use of alcohol had been found more conducive to health than total abstinence. We give the figures as supplied by Dr. Duncan, who does not, however, state the strength of the force in which the comparison was made, nor the duration of the experiment. The ratios are per mille of strength:—

—					Temperate	Total Abstainers
Admissions for Fevers ...	...	...	...	...	30.61	142.85
„ Other Diseases ...	...	...	...	...	37.07	47.61
„ Bowel Complaints ...	...	...	...	...	122.44	286.71
Mortality— do. do. ...	...	...	...	...	17.00	95.23
„ of total admissions ...	...	...	...	...	30.60	95.23

The author adds, "Here, certainly, the total abstainers had the worst of it. But the medical report further states that 'the men of the most intemperate habits' had the *lowest mortality*; so that if one argues that temperance is better than total abstinence from this expedition, one ought also to argue that intemperance is better than temperance, which is absurd" (p. 81).

The book is divided into two parts, one devoted to General Principles of Preventive Medicine, the other to Special Diseases. To some chapters of the latter we desire to draw attention; and first to the fifth, on Enteric Fever. On this subject we are glad to express our cordial agreement with almost all of Dr. Duncan's views. At the outset he states his belief that "nothing is more certain than that enteric fever owns the same ætiology in warm and hot climates as it does at home." He enumerates (p. 189) eight theories as to the origin of the disease, of which we need mention but three:—(1) The Climatic, (7) the Pythogenic, and (8) the Specific. Against the first of these he argues convincingly, and, of the two latter, inclines to the specific. "I believe," he says, "the

* It reminds us of the Colonel who, being called upon by circular to report the percentage of mortality and sickness in his battalion among total abstainers, replied that 50 per cent. had died, and the other 50 per cent. had been invalided home. On further inquiry it came out that there had never been more than two teetotalers in the regiment.

specific causation to be correct. At the same time, by acting also on the pythogenic view, the specific will be also prevented." Our readers are aware that a favourite argument for the climatic theory has been the impossibility of the pythogenic or specific in the case of military barracks so admirably "conserved," that the latrines and the dining-rooms might, at any moment, change uses. We cannot forbear quoting Dr. Duncan's reply to this absurdity:—

"A perfectly astounding argument has been adduced by the climatic theorists against the pythogenic causation—viz., that on account of our good sanitary barracks our men are protected from this causation. Do the climatic theorists mean to affirm that our men never leave their barracks? and, if not, what is the argument worth? Not much, truly. Why, from the very moment the soldier lands in India he is exposed to pythogenic agencies. He drinks unfiltered water in the railway; his milk is brought, in as many cases as not, in native vessels, and not milked before him. As Surgeon-Major Ranking well states: 'There is no station in India, however carefully its sanitary condition may be attended to, where the conditions for fæcal contamination of water easily accessible for drinking, though not intended for that purpose, do not exist.' Not unfrequently natives wash their clothes sitting on the cover of the wells set apart for the men. How filthy are the native cooks! Does the company dhobi never mix up native dirty linen with the soldier's washing? Do the men never go to the bazaars, which, as Maclean says, 'stand on soil for ages sodden with excrement?' Can any country, in cold climates, be instanced which can indeed show such forcing-beds for enteric fever, on the pythogenic theory, as the filthy cities, and towns, and villages of tropical and sub-tropical countries?"

The next chapter, on Typho-Malarial Fever, is also worthy of attention. The author denies the existence of such a nosological entity. The term has been applied, he thinks, to severe remittents with "typhoid" symptoms; or to enteric fevers occurring in patients who have previously suffered from malaria, or coinciding with malarial intoxication; or to a distinct disease which he terms "febris complicata," of unknown ætiology, but probably due to fæcal impurity of air or water, or perhaps to "drinking water rendered impure by decaying vegetable matter." Dr. Duncan tells us that he never saw any cases of Dengue in India. This we should have inferred from his extraordinary expression of opinion that "we hold dengue to be relapsing fever."! It is amusing to read in the next sentence that "Dr. Christie holds a somewhat unique view—viz., that dengue is related to cholera, and is, in fact, a distinct

variety of cholera." To us it seems that the two doctors may fairly contest the palm of "uniquity."

In the chapter on Sunstroke (XII.) the distinction, often overlooked, between *coup de soleil* and *coup de chaleur* is carefully recognised. He suggests the terms direct and indirect solar "heat-stroke;" but there seems to be no necessity for abandoning the older nomenclature—"insolation" and "heat-apoplexy"—provided their distinctness in nature and causation is kept in view. In Chapter XIV., on Yellow Fever, we find an account of some extraordinary experimental researches by Dr. Carlos Finlay, of Havana, who "shows that the disease can be communicated by the mosquito." We trust the editor of the *Spectator* may not "have his attention called" to Dr. Finlay's experiments. He "caused" mosquitoes to "sting"—Dr. Duncan always uses this inappropriate word—yellow-fever patients, and then twenty-four men who had not suffered from the disease. Two "were lost sight of;" six had yellow fever in a mild form, which appeared to confer immunity; eleven lived, exposed to infection, for two or three years without catching the disease; four had mild attacks several months afterwards; and one died of malignant yellow fever seven months subsequently. In May, 1885, Carmona, of Mexico, had "inoculated six prisoners with the dried residue of yellow-fever urine," of whom two died the same day. It must be admitted that our transatlantic brethren are more enterprising than we! We conclude with extracts from Dr. Duncan's account of prophylactic inoculation in yellow fever, recommended and practised by Dr. Domingos Freire:—

"He at first attacked the micro-organisms by a method of his own—'antimicrobism'—consisting in the culture of organisms antagonistic to those of yellow fever, and injuring and impeding the action of the *cryptococcus xanthogenius* [*sic*]. He first experimented on guinea-pigs, vaccinating them with a culture of these organisms, and found that they resisted the inoculation. Subsequently he and M. Rebourgeon determined that the parasite secreted a ptomaine, acting as a virulent poison. By a series of cultivations this virulence is attenuated, and then the cultivation-liquid, when inoculated, is a prophylactic against yellow fever. . . . Luckily for humanity Dr. Domingos Freire lived in a land free from the fanaticism of pseudo-humanitarians. His experiments having attracted the attention of the Emperor of Brazil, that monarch caused an institution to be organized for the purpose of public inoculation as a prophylactic against yellow fever. Dr. Freire then vaccinated 500 individuals, and

not a single case appeared amongst them. . . . From December 22, 1884, up to March 22, 1885, . . . 1,109 persons of different nationalities, whose ages ranged from one month to sixty years, have been inoculated in the deltoid region. Not one single case was severely attacked, and the very few who had suffered from the fever had it in the mildest form possible. Again, the results for December, 1885, and January and February, 1886, are as follows :—In 3,051 subjects inoculated in Janeiro there were no deaths, whereas in the same localities and houses 278 unprotected individuals died of the disease. Lastly, Dr. Isastier found, in Rio Janeiro, the mortality to be 1·6 per cent. amongst those inoculated, but 13·7 per cent. amongst those not inoculated. . . . There can be no doubt that Domingos Freire has conferred an unmeasurable benefit on the white races compelled to sojourn in the endemic regions of yellow fever " (pp. 288, 289).

The fifteenth chapter, extending over 74 pages, is devoted to cholera; and we are happy to observe that a clear key-note is struck in the first bar of the overture. "The great fact to bear in mind," says Dr. Duncan, "is, that cholera is propagated by human intercourse. Without human intercourse there can be no epidemic of cholera." Now that Surgeon-General Cunningham is no longer in a position to enforce his pernicious crotchets we can afford to be amused at his efforts to smother opinions opposed to his own fancies. One instance of such an attempt is given in the chapter before us. In his comment on the Berar Sanitary Report for 1878, he says:—"The chapter on cholera is too much occupied with the statements and opinions of civil surgeons on the importation doctrine. Little or no practical good can be expected from such inquiries, and it is therefore of great importance that the time of the medical and other officers should not be spent on them. If it were demonstrated that cholera is spread by human intercourse, nothing could be done to prevent such intercourse" !!! It is almost incredible, but sadly true, that the officer who could write those sentences was for years the trusted adviser, in sanitary matters, of the Government of India! * With Dr. Cunningham and his two knightly supporters Dr. Duncan does battle valiantly and successfully. This chapter on cholera is probably the most valuable in a valuable book.

* In Madras, some years ago, another surgeon-general abolished enteric fever in the European army—or, at any rate, "drove it beneath the surface"—by simply denying its existence, discouraging the reporting its occurrence, and superseding the diagnosis of the medical officers who saw the cases.

Practical Organic Chemistry: the Detection and Properties of some of the more important Organic Compounds. By SAMUEL RIDEAL, D.Sc. (Lond.), F.I.C., F.C.S., F.G.S.; Fellow of University College, London. London: H. K. Lewis. 1889. Pp. 160.

THIS book consists of a collection of the more important tests and reactions of the common organic compounds, and is specially intended for the use of those who are engaged in the practical study of organic chemistry. After an introduction which gives some general directions as to the detection of organic compounds, it treats of the more important organic acids, mentioning briefly their source and properties, and then describing a number of reactions which characterise each of them. Methods of distinguishing them one from another are given. The other sections treat, in a similar manner, of carbohydrates, the organic bases (urea and the alkaloids), proteids, and alcohols and their derivatives. The way in which the various tests are performed is clearly described. Several of the reactions are new to English text-books. One of the best sections is that on alkaloids, the colour-tests being clearly and concisely described.

There are, however, a good many errors in the book. Some of these are clearly typographical mistakes—*e.g.*, the statement, on page 101, that "Urine contains about 21 per cent. of urea," and that on p. 130, that "Liq. strychniæ hydrochloratis contains 1 grain in 100 fluid ounces." However, typographical errors will not excuse the following statements:—"Strychnine and its salts produce tetanus or lockjaw" (p. 128); "Starch is present in nearly all plants with the exception of lichens and algæ" (p. 87). Many algæ contain starch, while the whole class of fungi are characterised by never containing it.

The worst section is that on the chemical examination of urine and urinary calculi. It is ridiculous to attempt to treat this subject in three small pages.

Reference is occasionally made to the therapeutic action of some organic bodies. It would have been better to omit these references, as it is worse than useless to attempt to describe the therapeutic action of a drug in one or two lines. The following is an example of these loose and incorrect statements:—"Nitrite of amyl paralyses the sympathetic nervous system when inhaled in very small quantities." It seems to us that a drug, very small quantities of which paralyse the sympathetic nervous system,

would, in practice, certainly produce curious, not to say undesirable, results.

The English used by Mr. Rideal is sometimes strange. We notice on p. 128 the following:—"The best method of detecting it (strychnine) consists in the subcutaneous injection of a frog, and noticing the effect produced." We wonder under the skin of what animal would Mr. Rideal inject his frog.

On the whole, however, the book is well arranged and clearly written, and will be found useful both by those who are studying practical organic chemistry and by all who wish to have a clear and concise statement of the more important properties and reactions of the commoner organic bodies.

The Student's Handbook of Forensic Medicine and Public Health.

By H. AUBREY HUSBAND, M.B., C.M., B.Sc., F.R.C.S. Ed., M.R.C.S., L.S.A., late Lecturer on Medical Jurisprudence and Public Health in the Extra-Academical School, Edinburgh. Fifth and Revised Edition. Edinburgh: E. & S. Livingstone. 1889. 8vo. Pp. 623.

THIS is one of a series of medical text-books published by Messrs. E. and S. Livingstone, of Edinburgh, in handy, compact volumes, with excellent paper, and in clear type. From the nature of the case, the work is a compilation, and the author deserves credit for the industry and skill with which he has laid many books under contribution to his hand-book. It is a matter for regret that he does not always acknowledge the source of his information. For example, the sections on "Vital Statistics" and "Life Assurance" follow the corresponding sections of the "Manual of Public Health for Ireland" in the most servile manner, and altogether without acknowledgment. At page 416 an arithmetical example is copied in its entirety from the "Manual"—the name of the City of Dublin, to which the numerical data refer, alone being suppressed. Of course this is a compliment to the authors of the "Manual," but an acknowledgment would have enhanced it.

The work is a veritable "*Olla Podrida*," and would better have been entitled "The Student's Hand-book of State Medicine," for it travels through the wide domains of Forensic Medicine and Public Health. It travels, however, at break-neck speed, and hence the information given is not always particularly reliable, or expressed in very intelligible language. As an instance of the

latter fault, it is curious to read, at page 95, of "*vomited matters in drunken persons lodging in the windpipe.*" Again, under the heading "Suicide," at page 114, we read that "it not unfrequently becomes a question of the greatest importance to decide whether the death of a person found under peculiar circumstances was brought about by accident, suicide, or *by the hand of a third party.*"

For examples of unreliable information we may refer to the description of "Donovan's solution," at p. 283. It is said to be "a solution of hydriodate of arsenic and mercury—*not official*, but still used by many practitioners." It will be observed that Dr. Husband employs the obsolete nomenclature of chemical preparations in this and in many other cases. He overlooks the fact that Donovan's solution finds a place in the British Pharmacopœia of to-day. At page 487 we are told that *isothermal* lines are "lines drawn on a globe or a map *through places having the same mean annual temperature.*" This definition is altogether too limited, as a reference to the Daily Weather Charts published by the Meteorological Office, London, will show. On each of these charts isothermal lines are traced day by day without any relation to mean temperature or to annual temperature. Nor is the author's definition of "isobars" happier. He says: "Areas of equal pressure are joined together by lines called *isobarometric lines*, or simply *isobars*, that is, lines of *equal pressure*" (page 498). He would have done better if he had copied the definitions of "isotherms" and "isobars" word for word from the "Manual of Public Health for Ireland," as he did so copy the definition of "Buys Ballot's Law" (see page 500).

Can anything be more erroneous than Dr. Husband's description of relapsing fever as "*endemic in Ireland and Silesia, sometimes becoming epidemic*"? And "*spirillum fever*" finds scant justice at his hands in these sentences: "Bacteria have been found in the blood of those attacked. *Prevention.*—Good food and the other measures recommended for typhus." The word "*Ochlesia*," proposed by Dr. Laycock as the Greek equivalent of "overcrowding," considered as a predisposing cause of typhus ("*ochlotic fever*"), is written "*Οχλησις*, a crowd" (page 581). Under the heading "Measles" the malignancy of this disease when introduced into a new land is noticed, and "this severity is supposed to be due to the abundance in the blood of the fit pabulum for the germs of the disease, and *which has not been previously partially exhausted by the germs of the other exanthemata*" (page 581). At page 344 "nutmeg

liver" and "dram-drinker's liver" are said to be one and the same.

We notice not a few printer's errors and some infelicitous expressions, such as "tincture ferri perchloridi" (p. 30), and "tincture feri sesquichloridi" (p. 282); "trichnia" (twice for "trichina"), "medical treatment" for which "at present is hopeless" (page 322); "*colica pictonum* (not *Pictonum*), or painter's colic;" "tabaccum;" "succus lemonis," "cutus anserina" (p. 345); "atropia belladonna"; "cystisine," for the alkaloid of "cytisus laburnum." From these specimens it will be seen that Dr. Husband's work still needs revision, notwithstanding that it has passed through five editions.

The Transactions of the Medico-Chirurgical Society of Edinburgh.

Vol. VII. New Series. Sessions 1887-88. Edinburgh: Oliver & Boyd. 1888. Pp. 248.

It is unnecessary again to express our appreciation of the work done by the Edinburgh Medico-Chirurgical Society, or of the value of its Transactions. The present volume contains sixteen original papers, with the discussions which followed the reading, and the reports of two special discussions on important pathological subjects—the *Ætiology of Tumours and Animal Tuberculosis in relation to Consumption in Man*. The former discussion was opened by Dr. G. Sims Woodhead, the latter by the Principal of the Edinburgh Veterinary College, Mr. Thomas Walley. This gentleman gives a very alarming view of the ravages wrought by tuberculosis amongst our domestic animals. "I do not believe I am exaggerating," he affirms, "when I say that tuberculosis kills more cattle and birds than do all the sporadic diseases to which they are subject put together. Poultry yards are decimated, herds of cattle and swine are practically annihilated by this fell destroyer, and not infrequently the stock-owner sees his rent lying in the farmyard in the shape of the carcasses of pigs and poultry, and his pastures converted into graveyards for his cattle." He maintains the probability of the communication of the disease to man "by the ingestion of the flesh, the milk, or the viscera of tuberculous animals." Reading these things makes one feel tuberculous at once. How does any of us escape? Are we all entertaining *Bacilli tuberculosis* un-awares? However this may be, the paper and its discussion are most interesting and instructive. We shall mention but one other

paper in the volume, contributed by Mr. Skene Keith, on the Treatment of Fibroid Tumours of the Uterus by Electricity. He gives six cases, "selecting those where there has been a decided decrease in the bulk of the growth." These cases are apparently favourable to Dr. Apostoli's views; but the number is small, and the principle of selection unsatisfactory. The conclusion "damns with faint praise." If the procedure "does no good, it need certainly do no harm."

Atlas of Pathology. New Sydenham Society. Fasciculus VI.—Hydatid Disease of Liver; Urinary Calculi. London: H. K. Lewis, 1888.

MANY practitioners will welcome this fasciculus, which contains an admirable series of illustrations of urinary calculi. The descriptive titles of the plates are, in most instances, abridged from the histories given in the Catalogue of the College of Surgeons.

Appended to the plates is an essay on Urinary Calculi, the lessons which they teach, and the problems they suggest, by Mr. Jonathan Hutchinson. It is not very strong on the chemical side, but is well worth reading, and presents many interesting and suggestive reflections.

There are five plates in this fasciculus. The first one (Pl. XXVII.) represents part of a liver containing several hydatid cysts. The remaining four plates are entirely devoted to the illustration of the various forms of urinary calculi. The drawings are carefully executed, and coloured according to nature. All the important varieties are figured, and, in many cases, both external and sectional views are given.

The Annual Report of the Carlow County Infirmary for the Year 1888. Carlow: 1889. Pp. 6.

THE pith of this very brief report is contained in three tables, upon which, unfortunately, Mr. Robert O'Callaghan, F.R.C.S.I., the very able and zealous surgeon to the County Infirmary, offers no comment. Table I. includes a compendium of the cases treated in the Infirmary during the year ending December 31, 1888. They number 200 in all; of which 153 were discharged cured, 5 died, 22 were relieved, 16 remained under treatment at the end

of the year, and 4 were pronounced to be incurable. In addition to these intern patients, 889 extern cases were treated. Table II. shows some of the different operations performed during the year. They include two cases of ovariectomy—one cured, one relieved; four abdominal sections—three cured, one relieved; two radical cures of strangulated hernia; one successful amputation below the knee, and two successful amputations above the elbow. There were eight operations on the uterus, the exact nature of which is not mentioned. The operations numbered 60 altogether, and not one death followed. Table III. shows the cause of death in the five cases which terminated fatally during the year—they were: Double pneumonia in a man aged 70; scirrhus of the stomach in a woman aged 45; perforating peritonitis in a woman aged 40; cancer of the gall-bladder in a woman aged 57; and tubercle of the peritoneum in a woman aged 46.

The "Surgeon's Report," curiously enough, concerns itself almost solely with fiscal and structural details. At the close, Mr. O'Callaghan acknowledges in graceful terms the cordial and valuable assistance he had received from his colleague, Mr. W. H. O'Meara throughout the year. Mr. O'Meara administered ether in those operation cases which required an anæsthetic, and apparently worked most harmoniously with Mr. O'Callaghan upon all occasions when his aid was required.

RUPTURE OF THE UTERUS DURING LABOUR.

DR. J. L. M'DERMOTT (Louisville Medico-Chirurg. Soc.) reports a case of rupture of the uterus during labour. At the time Dr. M'Dermott was called, the woman had been suffering labour pain for nine days; there was a slight oozing of blood *per vaginam*, and the child could be felt through the abdominal walls. The relatives of the patient refused permission for an abdominal section, and the operation of turning was resorted to. Death followed in two hours afterwards.—*The American Practitioner and News*, Louisville, Ky., Vol. VII., No. 79.

ANTISEPTIC DRESSING.

A FIVE per cent. solution of the sulphobenzoate of sodium is recommended as an antiseptic dressing for wounds. The salt is prepared by dissolving benzoic acid in a concentrated solution of sulphite of sodium. It has the advantage of being odourless and non-poisonous, and is said to promote healing.—*Rundschau Prag.*, 1888.

PART III.

HALF-YEARLY REPORTS.

REPORT ON SURGERY.

By CHARLES B. BALL, M.D., M.Ch.; Fellow and Examiner in Surgery, R.C.S.I.; University Examiner in Surgery, and Surgeon to Sir P. Dun's Hospital.

THE details of wound-treatment constitute such an essential part of the surgeon's work that a review of authoritative statements on this subject forms possibly the most important feature in a review of contemporary surgery.

SUTURES.

It would appear that there is a growing tendency amongst surgeons to restrict the use of catgut as a suture material, and revert, where practicable, to the more easily disinfected silk threads. The observations of Kocher (*Korrespondenzblatt für schweizer Aerzte*, 1888) upon this subject cannot fail to prove of interest to the thoughtful surgeon. This distinguished observer has for a long time past tried experiments with a view to perfect the sterilisation of animal tissues used for the purpose of sutures and ligatures—the fluid hitherto recommended by him for keeping the gut in being the essential oil of juniper—sutures prepared in this way being very nice and soft to handle, and in the majority of cases aseptic; but a series of cases in which the wounds did not follow an aseptic course suggested from their similarity a common source of infection, and a thorough revision of materials employed narrowed the question down to the catgut used at the clinic for sutures and ligatures. A comparison being made with this catgut and sterilised silk showed that it was the former that was at fault. Kocher states that he has long been impressed with the difficulties in the way of rendering aseptic catgut and similar animal substances, as the fat in the interstices of the tissue prevents the thorough saturation by antiseptic fluids, and the tissue is unsuitable for the best of all sterilising agents—viz., heat.

The well-known case of Volkmann, in which catgut which had been kept for months in a 20 per cent. solution of carbolic acid infected a patient with true anthrax, is perhaps the most significant observation in connection with this subject, and serves to accentuate the fact that a perfectly reliable animal absorbable ligature is yet to be found.

DRAINAGE TUBES.

The tendency to dispense as far as possible with drainage tubes in wounds that are intended to heal by primary union appears to be increasing, and to substitute for them, wherever practicable, deep sutures and compression of the wound (Rydygier, *Beilage zum Centralbl. für Chirurgie*, 1888, No. XXIV.). Of course, in wounds where a large cavity is necessarily left—as abscess cavities—after excisions of joints and extirpation of deep tumours—tubes are still a necessity, but in the latter instances they are best probably removed as soon as serous oozing has stopped.

ANTISEPTIC DRESSINGS.

The doubts cast upon the germicide power of iodoform appear to be borne out by further experiments. Roosing (*Lancet*, 1888, I., 139) has demonstrated the important fact that the growth of tubercle is not retarded by iodoform. He inoculated the eyes of rabbits with a pure culture of tubercle bacillus, and with the same combined with iodoform respectively, and he found that the eye inoculated with the tubercle and iodoform became infected before the other, probably due to the mechanical irritation of the particles of iodoform. Binz, however, holds that iodoform, under certain conditions of light and the action of living tissues, &c., has an antiseptic action to the extent of the free iodine liberated by its decomposition. That iodoform, either in powder or in the form of iodoform gauze, acts favourably upon abscess cavities and surgical wounds generally is a fact supported by large clinical observation, and it is probable that this may be quite independent of direct germicide action, if by inhibiting wound secretion it minimises the production of fluid which forms a suitable nidus for the development of micro-organisms.

Amongst the numerous additions to antiseptic materials two alone appear to be worthy of note:—

Creolin.—Under this name a coal tar preparation is put forward by Jeyes' Sanitary Compounds Company, which appears to be of

decided merit. It is a thick syrupy fluid of dark brown colour and tarry odour, soluble in ether and alcohol, and forming an emulsion with water. Prof. Esmarch (*Brit. Med. Jour.*, Nov. 3, 1888) estimates its power as a germicide in comparison with carbolic acid by stating that a 3 per cent. solution of creolin equals a 5 per cent. solution of carbolic acid. This comparison with carbolic acid is further borne out by the detailed experiments at the Vienna Hygienic Institute by Eisenberg (*Brit. Med. Jour.*, Nov. 10, 1888). Experiments were made upon cultures of various organisms, and it was found that a 2 per 1,000 solution killed the cholera bacillus, the streptococcus of pus, and the coccus of erysipelas within two minutes, the bacillus of anthrax was killed in five minutes, while the typhoid bacillus and the staphylococcus of pus were alive after one hour. A 2 per 100 solution, however, proved fatal to these microbes. A 3 per cent. solution of creolin killed the spores of bacillus anthracis in two days, a 6 per cent. solution within twenty-four hours, while an 8 per cent. solution of carbolic acid had no effect on them in seven days. Prof. Attfeld states that a solution of creolin, 1-1,000, effectually checked the development of micro-organisms. Creolin has, moreover, the decided advantage over carbolic acid in being non-poisonous, large doses having been given to dogs without deleterious effect. It would appear, therefore, from the foregoing that we have a more powerful and generally useful antiseptic agent than carbolic acid. There appears to be only one surgical use for which it is not very suitable—as its solution with water is not clear, it is inconvenient for keeping instruments in during operations.

Salufer.—As an unirritating antiseptic, Mr. Mayo Robson (*Brit. Med. Jour.*, May 19th, 1888) speaks highly of salufer (sodium silicofluoride). It is sparingly soluble in water, the strength used by Mr. Robson being one grain to the ounce for ordinary purposes. He considers it specially suitable for syringing out cavities. It has, however, the decided disadvantages of acting on steel instruments and also the glaze of porcelain.

In connection with the subject of antiseptics, a very interesting article by Mr. A. H. Tubly, on "Antiseptic Methods and other Points in the Practice of Volkmann" (*Annals of Surgery*, Oct., 1888), may be noticed. It shows the full appreciation of the importance of these measures by the foremost German school. In the first place, it may be noticed that at this clinic the dressing of cases is not entrusted to mere students who are still learning

the details of antiseptic practice while they are in actual attendance on patients, but to thoroughly trained assistants who are well acquainted with the necessary routine, and have also passed through a course of bacteriology. The course of an operation is as follows:—The operator and assistants take off their coats, and roll up their shirt sleeves well above the elbows. They thoroughly wash hands and arms with a special sand carbolic soap, the nail brush and cleaner being brought into constant requisition. A white calico dress is then put on, reaching from the neck to the feet, has short sleeves, and buttons behind—the latter precaution being to prevent access of the hands to the pockets. This dress is used for only one day, or for only one case if it should happen to be foul. It is then sent to be washed. The hands and arms are, lastly, allowed to soak for about half a minute in corrosive sublimate solution, 1–1,000.

In preparing the patient the skin for a considerable area round the seat of operation is very carefully cleansed, shaved if any hairs are present, scrubbed with carbolic soap; grease is removed by sponging with ether, and the skin finally irrigated with corrosive sublimate solution; the instruments are, as usual, kept in a 5 per cent. solution of carbolic acid for some time before being used; all sounds and catheters are permanently kept in a 5 per cent. solution of carbolic acid in glycerine, the latter being found a more reliable medium than oil, while it answers equally well for lubricating purposes. Great care is taken in the management of sponges; they are kept in a strong solution of carbolic acid in seven porcelain jars, each day having its own appointed jar. Each day a jar is placed in the operating room, and in its immediate vicinity a locked tin box, containing carbolic solution, and having a hole in its lid. As the sponges are used they are dropped into the box, so can be used for only one operation. When the day's work is over, an assistant unlocks the box, washes the sponges thoroughly, and replaces them in the jar from which they were taken during the day. The jar is then put by until the corresponding day next week, the sponges during the interval lying in the strong solution of carbolic acid before mentioned; the same procedure is repeated every day. Irrigation of the wound is carried on from time to time during the performance of an operation, and continuously while saws are being used to divide bones. Ligatures and sutures are of silk, and catgut in oil of juniper. Wounds are dressed with carbolic acid or benzoic acid gauze, and large pads of wad moss,

and where plugging is required, as in excision of the rectum, iodoform gauze is employed. The spray is not used in this clinic.

THE SURGERY OF THE BRAIN AND SPINAL CORD.

The status of operative interference with the nervous centres is beginning to assume definite proportions, as the possibilities of more accurate localisation of idiopathic lesions is becoming more clearly determined, and the immunity which antiseptic precautions confer on the operating surgeon more absolutely demonstrated. In the Address on Surgery, at the British Medical Association, Mr. Wm. Macewen (*Brit. Med. Journal*, August 11, 1888) enters very fully into the subject of cerebral surgery, and supports his observations by the record of the largest number of cases hitherto noted as having occurred in the practice of an individual surgeon. Of these he gives the following statistical *resumé* :—

“Of twenty-one cerebral cases (exclusive of fracture of the skull with brain lesions or other immediate effect of injury) in which operations have been performed by me, there have been three deaths and eighteen recoveries. Of those who died, all were in *extremis* when operated on. Two were for abscess of the brain, in one of which the pus had already burst into the lateral ventricles; in the other, suppurative thrombosis of the lateral sinus had previously led to pyæmia and septic pneumonia. The third case was one in which there existed, besides a large subdural cyst over the one hemisphere, extensive softening at the seat of cerebral contusion on the opposite hemisphere, accompanied by œdema of the brain. Of the eighteen who recovered, sixteen are still alive in good health, and most are at work, leaving two who have since died, one eight years after the operation, from Bright's disease, she in the interval being quite well and able to work; the other forty-seven days after the operation, after the abscess was perfectly healed, from an acute attack of tubercular enteritis.”

It is impossible in a review like the present to give details of these cases, but they well repay a careful perusal. With regard to the operation itself, Macewen recommends that the pieces of bone removed from the cranium should be kept in warm carbolic lotion, and, at the conclusion of the operation, divided into small pieces, and replaced in the aperture in the skull between the replaced dura mater and scalp. He states they grow, and thus regenerate the bony protection to the brain. Dr. R. F. Weir (*American Journal of Med. Science*, July, 1888) has also recommended the

following ingenious procedure :—Before operating he encircles the skull with an elastic band, and thus (in the way that the Esmarch band controls bleeding in operations on the limbs) checks bleeding from the scalp, and thereby renders the later stages of the operation more definite and easy of performance.

Von Bergmann (*Arbeiter aus der Klinik*, Berlin, 1887) discusses very ably the indications for operative interference with the brain in cases in which the localisation is effected by the symptoms indicating interference with the motor, and in a less degree with the sensory, centres of the cerebral cortex, apart from the direct indications of traumatism from the skull, and he deals elaborately with the question of traumatic epilepsy, recommending operation in selected cases. Roughly speaking, it would appear that the conditions, other than depressed bone, met with during operations, may be conveniently classified under the following heads :— (1) Blood Clots ; (2) Purulent Collections ; (3) Tumours ; and (4) Altered Cicatrices. *Blood clots*, as a result of injury, may by their pressure give rise to distinctly localising symptoms, even when at some distance from the point of injury. An interesting case of blood clot pressure over the motor area was successfully operated on by Mr. Thornley Stoker, and is found recorded in the Transactions of the Royal Academy of Medicine in Ireland for the year 1888, and a case by the reviewer, in which a blood clot gave rise to aphasia, and was successfully removed from the fissure of Sylvius, is to be found in the same volume.

Abscess.—As von Bergmann has pointed out, cerebral abscess is always secondary to some other condition, either traumatism, suppurating otitis, or purulent collections at a distance, notably empyema. When single, as is usual in the two former cases, and when localised definitely by the symptoms, the cases are admirably suited to operative interference, and brilliant results may be obtained by their efficient drainage, as in the case recorded by Sir William Stokes in the Transactions of the Royal Academy of Medicine in Ireland, 1888 ; but, when secondary to suppuration at a distance, as in the case of empyema, they are not infrequently multiple, and incapable of exact localisation.

Tumours may originate from either the brain or its membranes, and then can be removed with good prospect of success ; but when originating in the brain substance, if they implicate the motor centres, their removal will obviously necessitate the production of permanent paralysis. Macewen has drawn special attention to

this subject, and strongly deprecates the removal of large portions of important brain substance necessitated by these operations.

Cicatrices.—In a large number of cases of Jacksonian epilepsy, the only lesion found is an adhesion of the membranes to the brain and changes in the gray matter immediately underlying, and when these can be localised by observations on the group of muscles first affected by the convulsions, and the occurrence of monoplegia, Bergmann strongly recommends careful removal of the cicatrix and subjacent diseased brain tissue. The number of cases of this kind hitherto operated on is, however, too small from which to draw safe conclusions as to permanent results.

SURGERY OF THE SPINAL CORD.

Mr. Macewen, in his address at Glasgow (*Brit. Med. Jour.*, Aug. 11, 1888), brings forward six cases in which he had operated on the spinal cord by elevation of the laminæ of the vertebræ. Five of these were cases in which paraplegia with incontinence of urine and fæces followed angular curvature, and, upon exposure, the cord was found to be compressed by connective tissue, by new formations, or by bone, and the compression was easily removed. In three of these cases the restoration of sensation and motion is stated to have been complete, and the recovery to have been perfect, and in two other cases death has followed—one from extension of tubercular disease, months after the operation, and after the wound had healed; and in one the operation probably hastened the death of the patient, who was otherwise in a painfully helpless and hopeless condition.

In another case of paraplegia from traumatism Mr. Macewen has obtained a successful result by elevating the depressed arch of the twelfth dorsal vertebra and removing a connective-tissue tumour, but, as he justly points out, traumatic lesions are, as a rule, so gross, and the destruction of the cord so complete, that, in such, operative treatment can be of little service.

REMOVAL OF A TUMOUR OF THE SPINAL CORD.

Dr. W. R. Gowers and Mr. Victor Horsley record (*Med. Chir. Trans.*, Vol. 71, page 377) a most instructive and successful operation of this kind. When seen by Dr. Gowers the patient, a man aged forty-two years, had absolute palsy of the legs, and cutaneous sensibility of all kinds was lost as high as the ensiform cartilage in the region of the sixth and seventh intercostal nerves. He

complained of severe pain around the chest, much more severe on the right than on the left, and increased to evident agony upon any movement. There was rigidity of the legs from extensor spasm at times, and the bladder was distended with purulent urine. There was no tenderness or irregularity of the spine.

Mr. Horsley exposed the cord by removing the spines and laminae of the fourth, fifth, and sixth dorsal vertebræ. An almond-shaped tumour, the lower extremity of which was attached to the left fourth dorsal nerve, came into view, four inches above the level of complete anæsthesia. This was carefully dissected away from the cord, and proved, on microscopical examination, to be a fibro-myxoma. The patient recovered completely, and was able to do a sixteen hours day's work, with much standing and walking about. The paper alluded to discusses very thoroughly the whole subject of tumours of the spinal cord.

EMPYEMA.

Dr. C. J. Robertson contributes to the *Medical Chronicle* (March, May, June, and July, 1888) an interesting series of papers on empyema, discussing very fully the process of repair after the usual methods of treatment. The opinions hitherto held as to the process by which an empyematous cavity becomes obliterated and the lung re-expanded he considers unsatisfactory. When an incision is made into the pleura containing fluid, much of the fluid is expelled and replaced by air; while, as the movements of respiration have no effect in causing the expansion of the lung, owing to the free ingress of air through the wound, its contractility is unopposed. Consequently, the first result of free opening into cases of empyema of moderate size is a contraction of the lung and further increase of the capacity of the empyema. The usual explanation of the subsequent obliteration of the cavity and re-adjustment of the relations between the chest wall and lung is that given by Mr. Godlee. He says—"The whole interior of the pleura which has suppurated becomes lined, if not with actual granulations, at least with a material which, like them, in its advance to a more highly organised condition necessarily undergoes a process of contraction; and that which occupies the angles between the lung and chest walls, lung and diaphragm, lung and mediastinum, and diaphragm and chest walls, is constantly drawing these structures towards one another. The affected lung is drawn out and made expand." That in the majority of cases in which recovery

slowly ensues the process above described is probably what takes place; but, according to Dr. Robertson, it is incapable of explaining those tolerably numerous cases in which the re-expansion of the lung is rapid, and recovery takes place in a short time. He considers that a somewhat valvular action is developed in the wound. As the wound granulates it comes to resemble a slit which will admit of the expulsion of air and fluid during forced expiration; but when an effort at inspiration takes place these edges flap together, and effectually prevent the ingress of air. Thus a vacuum is produced within the chest, giving the lung the normal stimulus to expand. Modern dressings, according to Dr. Robertson, aid materially this desired end, especially if a piece of protective is used. This, when it becomes soaked with pus, makes a most excellent valve, and the same may be said of the gauze dressings as soon as they become saturated with discharge. Drainage tubes, if used in the usual way, tend rather to defer the re-expansion of the lung, so that their continued use is, if possible, to be avoided—not alone on the grounds here advocated, but in consequence of the frequency with which necrosis of the ribs follows their protracted employment. Dr. Robertson proposes a method for the treatment of cases of empyema, which, although troublesome, will commend itself to thoughtful surgeons. For the full details of his operation the reader must be referred to his articles. The main principle consists in making two openings in the chest wall, and introducing the ends of India-rubber tubes, which are retained within the chest by L-shaped pieces of glass tube inside the rubber. One leg of the L lies in the thorax, and the other projects between the ribs. The tubes are kept in position with iodoform wool soaked in collodion applied round the wound. The lower tube, which should reach to the bottom of the pleural cavity, is used for irrigating, and when not in use should be kept clamped, while the other is attached to a siphon for drainage. It is claimed for this method that irrigation can be more perfectly carried out, and solid particles thoroughly washed away, and obstructions to the tube can be more readily overcome. During the treatment the bottle in which the siphon terminates is kept a little below the level of the chest, so that there is a continuous, though slight, suction action constantly tending to re-expand the lung. These tubes are to be removed when for two or three days the amount of discharge is under one ounce of aseptic pus, and when the lung is re-expanded. The wounds are then to be dressed with moist protective and iodoform gauze.

Thoracoplasty for Chronic Empyema.—At a meeting of the Medical Society of London (*Lancet*, 1888, Vol L, pp. 261 and 276), Mr. A. Pearce Gould strongly advocates Estlander's operation in properly selected cases of very chronic fistulous empyemas. It consists of the removal of the entire unyielding bony wall of the cavity. The extent of the cavity is first determined by an enlargement of the existing sinus. The ribs are then to be resected subperiosteally to the entire extent of the outer wall of the cavity. All the dense cicatricial tissue lining them is to be removed with a scissors, sometimes to an inch in thickness, so that nothing is left but a soft and easily collapsing wall of soft tissues, the first rib, owing to its important relations, alone not being dealt with. If the success of this operation is not complete, it is owing to the fact, in all probability, that it has not been complete enough. He adds a number of very interesting and remarkably successful examples of this procedure. Ollier (*Internat. Journ.*, 1888, 2, 78) has pointed out a danger of the too free removal of ribs near their anterior extremities; that their development is interfered with, and marked thoracic deformity may result.

PROSTATOTOMY AND PROSTATECTOMY.

Mr. Reginald Harrison (*Year Book of Treatment*, 1888, page 213) has collected quite a number of cases in which these two operations have been recently carried out with a large amount of success, the removal of fibromyomata of the prostate being subsequent to a supra-pubic cystotomy, while the simple incision of the floor of the prostate is carried out by perineal incision. Speaking of the relative merits of these methods, he says:—"My own feeling is generally in favour of perineal prostatotomy, having regard to the free access that can thus be safely made to the bladder, and the great advantage this position offers for thorough and prolonged drainage by a proper tube, which all these cases require if they are to be permanently successful. On the other hand, cases are occasionally met with where, from the size of the prostate and the projecting character of the fibromas connected with it, the supra-pubic opening affords the most direct and certain manner of combining exploration and extirpation. In a case recorded by Dr. Schmidt prostatotomy was resorted to with excellent results six weeks after extirpation had been performed."

DRAINAGE IN SUPRA-PUBIC CYSTOTOMY.

Mr. H. Fenwick (*Illustrated Med. News*, Sept., 1888) describes a plan which he has invented, and which appears to answer the purpose admirably. The drainage tube from the bladder is connected at an acute angle with the tube from an irrigating can, slightly above the level of the patient; from the point of junction a tube passes down into a vessel underneath the patient's bed, and a continuous trickle of water is allowed to flow from the irrigator along this tube. By this means, after the method of the Sprengel pump, the urine is sucked out of the bladder as soon as it is secreted, and the patient is kept dry.

TREATMENT OF CARBUNCLE BY SCRAPING.

Mr. Herbert Page describes this treatment as follows (*Brit. Med. Journ.*, March 24, 1888):—The patient is anæsthetised, and if the carbuncle has not yet opened, incisions are to be made into it, and then, with a Volkmann's spoon, you scrape out every particle of sloughing tissue, scraping down into the depths, and going from point to point, until the whole slough is cleared out. Skin permanently damaged is to be removed with scissors; then well irrigate the wound with perchloride of mercury solution, dust with iodoform, and dress, with some pressure, with wood wool-pads. Mr. Edmund Owen, Mr. R. Parker, and Sir Peter Eade all speak favourably of this apparently rational proceeding.

RUPTURE OF THE QUADRICEPS EXTENSOR FEMORIS.

DR. W. R. CLUNES (*Sacramento Med. Times*, Nov., 1888) reports a case of rupture of the quadriceps extensor femoris occurring in a healthy man of seventy-five years of age, who was walking slowly along a level path. The rupture occurred at its insertion into the patella, the separation being complete, the detached end being distinctly felt and fully two inches above the upper border of the bone.

CARCINOMA OF THE DURA MATER.

DR. LÖWENMEYER, at a meeting of the Berlin Medical Society, Oct. 11th, 1888, exhibited a case of carcinoma of the dura mater, which had produced perforation of the cranial bones in three places. The specimen was obtained from a man forty-four years old, who died of carcinoma of the lung. During the man's life the meningeal carcinoma had occasioned no trouble, pain, or inconvenience.—*Bulletin Médicale*, 11th Oct., 1888.

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PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SAMUEL GORDON, M.D., F.K.Q.C.P.I.

General Secretary—W. THOMSON, M.D.

SECTION OF OBSTETRICS.

President—W. J. SMYLY, M.D., F.K.Q.C.P.

Sectional Secretary—ANDREW J. HORNE, F.K.Q.C.P.

Friday, December 21, 1888.

The PRESIDENT in the Chair.

Ovarian Tumour.

MR. O'CALLAGHAN exhibited an ovarian tumour. It was taken from a woman who was for ten months under the care of Dr. O'Hanlon, of Castlecomer, and who reported the case to him. She had been tapped, and afterwards had an attack of acute peritonitis. At the end of November he saw the case with Dr. O'Hanlon, and she came to him again to the infirmary in the first week of December. There was no doubt about the diagnosis, and it was also evident that the tumour was adherent anteriorly, but not otherwise. For weeks before she came into the infirmary the woman had been unable to eat anything, and he resolved on the operation as a *dernier ressort*. On opening the abdomen he found that the tumour was adherent anteriorly, and it was with great difficulty separated from the peritoneum. He was able, however, to remove the tumour quite easily. The whole of the intestines were a mass of tubercle, and were matted together with the mesentery in a lump; and the liver was completely atrophied and covered with tubercle. He washed the abdomen out, but, as he expected, the woman died on the third day after the operation. Her temperature after the operation did not rise; and at the time of the *post mortem* the wound showed very

slight, if any, signs of adhesion, so that there had been evidently no power of rallying. She had no pain after the operation, and simply sank from exhaustion. The tumour was so very large that the incision had to be made from the pubes to the umbilicus, and he had to get his hand in and break the tumour down.

Vaginal Cast.

DR. F. KIDD exhibited a vaginal cast. The patient had had a miscarriage five weeks before he saw her, but no clear history was to be had of the circumstances of the miscarriage. She was supposed to have been pregnant three months previous to it. He was called in to see her for hæmorrhage, which recurred at intervals of one or two days, with freedom from it in the intervening periods. The uterus did not seem enlarged to any appreciable extent, being about two inches and three quarters in length. There were no inflammatory symptoms. He applied the ordinary treatment, but the case did not improve. He was puzzled, and at first thought that some portion of the abortion had remained inside and set up the intermittent hæmorrhage. The os was fairly open and about the size of a threepenny bit. He introduced a blunt curette but found no obstruction. He treated her with tincture of iodine internally, but the hæmorrhage continued, and other methods also failed to stop it, including tincture of iron. He then tried a stronger tincture of iron. Two days afterwards, the hæmorrhage having stopped, she told him, when he saw her, that on the preceding night she felt something in her vagina, which she was at first afraid to remove, but afterwards she gathered courage and drew it out. It was like a piece of wet parchment, and he concluded that it was a portion of membrane connected with the miscarriage. Sections of it for the microscope had been made by Dr. Ball. It had proved to be squamous epithelium, which, under ordinary circumstances, was not found in the interior of the uterus except where there had been complete inversion of the uterus for a considerable time. The cast was evidently vaginal and not uterine. The only explanation he could suggest of the occurrence was that the last tincture of iron that he applied was too strong, and had caused the epithelium to exfoliate.

Prolapsus Uteri.

The PRESIDENT read a paper upon prolapsus uteri. Having discussed the varieties and causes of this condition, he stated his experience in treatment. Most of the causes which lead to prolapse are preventable; this should never be forgotten in labour and childbed. The first method of treatment to which he drew attention was massage, or Thure Brandt's method. Of the results he could not speak very positively, but he had found massage of equal value in chronic inflammatory conditions of the uterus and its ligaments. He had also satisfied himself that the forcible

separation of the knees caused contraction of the levator ani muscles. In the vast majority of cases we are still obliged to resort to the use of pessaries; the best is still Hodge's, which keeps the uterus anteverted; but where it is not retained, Meyer's ring, which the patient can introduce and remove herself. Where the pelvic floor is incompetent, he always advised operation. Of vaginal methods he had tried only two—namely, Hegar's and Martin's—and in one case only out of eight had a recurrence taken place. That case was operated upon in 1885. The patient was a midwife, and submitted to operation only after every method of mechanical support had failed. The result was at first very satisfactory. After two years, however, the uterus again came down, and mechanical supports once more proving useless, Alexander's operation was performed; and since then (Aug., 1887) there has been no tendency to descent. A hernia had, however, formed in the right inguinal region, for which she wears a truss.

DR. ALFRED SMITH said he had obtained some splendid results by massage, which he intended to bring before the Section.

DR. MACAN said he agreed with so much of what the President had said that he had very little to add. He did not know, however, that the President had given definitely what his ideas were with regard to Alexander's operation. But if it was calculated to produce suppuration with a danger of peritonitis ensuing, and of hernia occurring afterwards, by which life might be endangered at any moment, how could they tell whether it would not be better to leave the patient in such a case alone?

DR. KIRKPATRICK said he supposed there would be a much greater strain on the round ligament after the operation as the President had performed it than if it were done according to the mode Alexander first used.

The PRESIDENT, in reply, said his experience of massage treatment had been chiefly in cases of chronic inflammation. As to the strain on the ligament being greater than where there was retroversion, that was very probable, but, as Alexander pointed out, the object of the operation was not to hang the uterus as a man would hang from a trapeze, but to keep it in position of anteversion, so as to restore the action of the ligaments. The suppuration that occurred in his case might have resulted from his having used hospital sponges instead of his own. But in most of Dr. Alexander's cases suppuration had occurred too. As to the liability to hernia, all women who laboured under prolapsus uteri were specially liable to hernia; and meddling with the abdominal rings made them still more liable to it. In these cases they were limited to three modes of treatment—viz., 1st, the total removal of the uterus; 2nd, the performance of abdominal section and drawing up the uterus and fixing it in the abdomen; and, 3rd, Alexander's operation. Putting aside the first of these, he was disposed to think that Alexander's operation was the best of the two latter. It restored more of the natural functions.

According to Schultze, it was better to cut through the posterior *cul de sac* and try to form an adhesion between the cervix and the peritoneum and shorten the round ligament than to attempt to fix the uterus in its proper place through an abdominal opening.

An Œdematous Fœtus.

DR. ALFRED SMITH read a paper on an œdematous fœtus, exhibiting specimen, which was obtained from the extern department of the Rotunda Hospital. He referred to the modern literature of the subject. He considered the œdema to be universal lymphatic œdema, due to an absence of the thoracic duct and mesenteric glands, which absence Professor Birmingham, President of the Anatomical Section, after a most careful examination, demonstrated. Such a congenital defect had not been, in the human species, previously observed.

The PRESIDENT said they were greatly indebted to Dr. Smith for the thoroughly scientific manner in which he had dealt with this case.

DR. BIRMINGHAM said that before he made the anatomical examination in this case he had been unable to find any record whatever of a case of a human being in which the thoracic duct was absent. The examination which he made in the present case was conducted with the greatest possible care. In the normal fœtus he found the thoracic duct without the slightest difficulty. In the œdematous fœtus the pleura was so transparent that the sympathetic and ganglionic cords, the aorta, and the vertebral column could all be seen through it. Before they touched the pleura they saw no thoracic duct in the normal position. Then they searched behind the œsophagus and all down through the abdomen, but found not the slightest trace of a thoracic duct. In the normal fœtus they found the mesenteric gland, but not in the other. He believed this case of absence of the thoracic duct in an œdematous fœtus to be the first recorded of its kind.

DR. PATTESON asked had Dr. Smith any explanation to give of the absence of the duct.

MR. HORNE observed that the absence of the thoracic duct in this œdematous fœtus being granted, there still remained the question as to how the œdema was to be accounted for. If there had been a blocking up of the venous system one could understand œdema supervening; or if there had been abnormal peculiarities of the heart they could understand such a result; but he failed to see how the simple absence of the thoracic duct could cause œdema.

DR. SMITH, in reply, said he could give no reason for the condition of things which he found. It was not exactly known how the thoracic duct developed; but he believed that owing to the absence of the duct the lymph spaces became blocked, so that the normal transudation of the lymph could not occur, and it was not in consequence carried away.

Friday, March 8, 1889.

DR. J. A. BYRNE in the Chair.

Exhibition.

DR. GRAVES exhibited for the President, who was absent, a sloughing fibroid. It was removed from a woman by an operation at which he (Dr. Graves) was present. The peritoneum was very thick, and the tumour came down upon the uterus. A pint of pus came from it. There was a mass of malignant growth, and also a great many adhesions in the abdomen. The woman died.

The late Dr George Johnston.

DR. CRANNY moved—"That the marked sympathy of the Section be conveyed to the family of the late Dr. George Johnston, one of the former Presidents of the Section." Dr. Johnston had been Master of the Rotunda Hospital, and had given them all a great deal of valuable information in his Reports connected with that institution. The resolution was passed in solemn silence.

Laparotomy for a Ruptured Tubal Gestation.

DR. THORNLEY STOKER read the particulars of a case in which he had performed laparotomy for a ruptured tubal gestation. The woman, who was twenty-four years of age, and who had been four years married, had the usual history of previous tubal disorder and pain on the left side—that on which the gestation had taken place. She had given birth to a still-born foetus at the 7th month during the year following her marriage, and had not since been pregnant. The rupture took place about the 12th week.

The case, unfortunately, did not come under his care until the 8th day after the rupture, when the woman was so exhausted by peritonitis, pain, and vomiting, that operation was undertaken as a forlorn hope, with the result of death about eight hours afterwards. The case had been regarded, before he saw it, as one of intestinal obstruction.

There was a broad-ligament hæmatocele in the tube, as large as a hen's egg, and an enormous extravasation of blood into the peritoneum. The former was primary and the latter secondary, and probably due to the penetration into the peritoneum of the vessels of the placenta. The ovum, with the exception of the placenta, had perished at the time of the first hæmorrhage, and growth of the placenta had resulted in the fatal bleeding. The portion of the broad ligament containing the remains of the gestation was ligatured and removed, the peritoneum washed of clots and fluid blood, and the intestines, as far as possible, freed from the extensive adhesions which existed. The gestation had taken place in the tube near to the fimbriated end.

He pointed to two matters of exceptional interest in the case—one

that it constituted an example of the rare condition of a primary broad-ligament hæmatocele, followed by a secondary intra-peritoneal one. He explained his view that the latter was not due to a rupture of the former, but to a growth and penetration of the vessels of the surviving placenta. The second exceptional feature was the rectal obstruction, due to intra-peritoneal pressure from clots. To this he called attention as disproving the statement of Mr. Tait, that rectal obstruction is necessarily a sign of extra-peritoneal hæmatocele. He referred to the brilliant results obtained by operation in these cases by Mr. Lawson Tait, whose views as to the propriety of operation he strongly advocated.

DR. BYRNE said the case was a remarkably interesting and instructive one. One feature in it was the difficulty of diagnosis owing to the simulation of the symptoms of obstruction of the bowels caused by the large quantity of blood that was poured into the peritoneum. He supposed one of the reasons why cases of rupture in ectopic gestation had not been oftener noticed by writers was that when a large effusion of blood took place into the peritoneum the patient generally died. Dr. Stoker had not mentioned whether in his case any trace of the fœtus was found. There was no doubt that the treatment adopted by Dr. Stoker in his case was right. If they were convinced that there was effusion of blood into the peritoneum they should perform laparotomy, remove the clots, tie the vessels, and give the woman a chance. The difficulty was to determine the exact moment at which they should perform laparotomy, for generally there was such collapse that their hands were tied. Whether a correct diagnosis were arrived at or not he thought that symptoms of obstruction alone would justify the operation. It was an interesting question as to what caused the obstruction of the tube in the present case, and why the fœtus should have developed at the particular place where it did.

MR. HORNE said they were deeply indebted to Dr. Stoker for this interesting and accurately-described case. It was extremely interesting from a medico-legal point of view. There was a woman brought to hospital, without any accurate previous history, and having well-marked symptoms which might have been taken for poisoning. The diagnosis that seemed to have been actually made was intestinal obstruction. From the specimen exhibited he felt a difficulty in arriving at the conclusion that the intestinal obstruction was the result of the hæmorrhage, and having gone into the free cavity of the peritoneum he failed to see how the pressure of the clots could have obstructed the intestine. The history of the case looked very much as if the woman had had syphilis, and disease of the Fallopian tube, which would account for the impregnation taking place in the tube itself. The period at which the rupture took place, corresponding to the thirteenth week of pregnancy, was the usual time at which such ruptures occurred; they rarely happened later than the fourteenth.

MR. O'CALLAGHAN said they had not seen any operations for cases of this sort in Ireland, and he thought that the cases must have been overlooked; for in England Mr. Lawson Tait had published a great many of them.

DR. MACAN said during six years' experience in the Rotunda he had seen a great many cases of extra-uterine foetation, with hæmorrhage, and he had never operated in any case while the hæmorrhage was taking place. They had three cases under observation at the same time, in which, as far as they could observe, ectopic gestation had taken place. Of the total number of cases some had made a good recovery, and some had not; and there were others under observation at present. Ordinarily speaking, he would not dream of operating in any case unless he diagnosed it early before the rupture. Once the rupture took place they had hæmorrhage into the peritoneum; and then the question of operation or not became a most difficult one to decide. As soon as blood passed, the bleeding lessened; and, once it stopped, the woman was almost cured. Hæmorrhage into the peritoneum was taken up with great rapidity. If meddled with, it became a different thing. With a view to operation the thing should be ascertained before any rupture took place; after a rupture it was extremely difficult to decide on the moment to operate. When the hæmorrhage was retro-peritoneal the woman would very likely get well without any operation. He believed that numerous cases of extra-uterine foetation occurred and got well without any doctor seeing them at all.

DR. STOKER, in reply, said he had mentioned that in his case the foetus had become broken up, and the remains lay among the clots in the tube and could not be identified, but the placenta could be readily seen, and its attachments studied as it had survived the destruction of the rest of the embryo. He himself had not regarded the case as one of intestinal obstruction; what he said was that it had been so treated before it came under his observation. In fact he had not enough evidence to prove what it was. The only thing he knew for certain was that the woman was dying of some intra-peritoneal condition that required laparotomy for its accurate diagnosis. In his paper he (Dr. Stoker) distinguished between extra-peritoneal bleeding, where the blood coagulated and dried up, and bleeding into the peritoneum. In the former cases an operation was not always called for, and the woman might make a perfect recovery without it. In the latter, where the sac of the peritoneum became a great mass of blood and clots, and the woman was dying from loss of blood, there should be no hesitation about operating. Dr. Tait had published 41 cases of intra-peritoneal hæmorrhage in which he operated and saved 39. He could not conceive a surgeon making the statements that Dr. Macan had made—namely, that it was easy to diagnose ectopic gestation, and that even where intraperitoneal hæmorrhage had occurred he opposed the operation of laparotomy.

SECTION OF ANATOMY AND PHYSIOLOGY.

President—PROF. BIRMINGHAM, M.B.

Sectional Secretary—H. J. BROOMFIELD, F.R.C.S.I.

Friday, January 4, 1889.

The PRESIDENT in the Chair.

Exhibits—Brain Growth.

PROF. CUNNINGHAM showed a series of models, in continuation of the exhibits which he made last Session, illustrating brain growth—viz., head of foetus six months old; head of child at birth; head of child at six months; head of child at one year; and head of child at four years. In addition to these, and those exhibited last Session, he still required heads at two, three, seven, and nine years old respectively, to complete the series sufficiently for the purposes of the observations which he hoped to make. Of the exhibits now submitted, the brain of a girl four years old, as contradistinguished from that of a boy of the same age, had indications that it was a young brain; the relations of the fissures to the bone were identical with those in the adult. He also exhibited models of two heads of apes.

The PRESIDENT regarded the models as of special interest to operative surgeons, apart from their interest to anatomists, as affording a ready guide to the brain.

- (1.) *Fœtus without Thoracic Duct.* (2.) *Lumbar Spine and Plexus with Six Lumbar Vertebrae.* (3.) *Abnormal Liver.*

PROF. CUNNINGHAM having taken the chair,

The PRESIDENT exhibited what he believed was the first case on record where the thoracic duct had been observed absent in the human subject; it was an œdematous foetus received by Dr. Alfred Smith in the out-patient department of the Rotunda Hospital; and indeed it was Dr. Smith who had suggested the examination which led to the discovery, from the analogy of what sometimes occurred in œdematous foetuses of the bovine tribe.

The PRESIDENT exhibited, secondly, a specimen of lumbar spine and plexus with six lumbar vertebrae, indicating that the first lumbar vertebra resembled the dorsal, and developed on the tip of its transverse process a little bony process.

The PRESIDENT exhibited, thirdly, an abnormal liver, interesting only from the fact that a large lobe projected from the front of the right which, in diagnosis, might be mistaken for a tumour.

PROF. CUNNINGHAM asked if Prof. Birmingham had made an examina-

tion of the great vessels of the thorax, and, if so, whether he had observed any abnormality in connection with them, since there was a correlation in the development of those vessels with the thoracic duct. The existence of the supernumerary lumbar vertebra opened up a wide field of discussion, especially on the question with what vertebra in the spines was it homologous. On that question the opinions of anatomists conflicted, some holding that each region was homologous with some other region of another spine, and that the added vertebra was added not from the region above or below, but from the material laid down to form the set number; while others contended for the numerical homology, that where there was a supernumerary lumbar vertebra, its addition should be sought either from the dorsal region above or from the sacral region below. He was himself inclined to hold to the numerical theory of homologies.

The PRESIDENT said he had examined the large vessels of the thorax and found no abnormality. The fact that the first of the six vertebræ was like a dorsal vertebra in appearance, and had a lumbar rib development at its transverse process, indicated that it was one of the dorsal vertebræ taken up in the lumbar region, but the additional nerve, instead of being added above, was added below.

The President's Address.

The PRESIDENT then delivered his Inaugural Address, of which the first portion appears at page 302 in the present number of this Journal.

Relations of Costal Arches to the Sternum.

MR. O. L. ROBINSON (student-associate) read a paper on the relations of costal arches to the sternum. In *Nature* of November 1, 1888, it was stated that Dr. Lamb, of the United States Army Museum at Washington, had drawn attention to a singular phenomenon observed in human sterna; this was the occurrence, in a number of instances, of eight costal cartilages attached to the sternum. In twelve cases which he had now collected, the abnormality was observed eleven times in Negroes, and in the remaining instance in an Indian.

Since the commencement of the present winter Session investigations have been carried on in the dissecting-room of Trinity College with the view of determining the frequency of this anomaly. Twenty-five subjects and five dried specimens have been examined with this object, and in six instances the arrangement of the costal arches has been found abnormal. In one case only were both eighth costal cartilages found attached to the sternum; in the remaining instances the attachment took place on the right side alone. Of these six cases three were from female and three from male subjects.

Dr. Lamb has stated that only two German text-books mention the anomaly; reference to the occurrence may, however, be found in the

works of Henle, Luschka, Alby, Hyrtl, and Gegenbauer. Prof. Humphry also states that in the Museum of the University of Cambridge there is a sternum with eight costal cartilages attached, while in Holden's "Osteology," there is a plate showing eight costal cartilages attached to the sternum, although no reference to this fact is made in the text. The text-books of Gray and Quain make no mention of this peculiarity.

PROF. CUNNINGHAM said the communication read disclosed the result of part only of an existing system of investigation which he had introduced into his class of practical anatomy, in the belief that a great deal of good fruit was likely to accrue from an organised system of collective investigation. Not the least interesting point in connection with the arrangement of the cartilages was what was observed in the apes. In the chimpanzee and gorilla there were eight true ribs—to each side of the sternum eight costal cartilages attached. That was not the case with the ourang, which had twelve dorsal vertebræ, and it, like man, had seven true ribs. The gibbon intervened between man and the ourang on the one hand, and the chimpanzee and the gorilla on the other. While the eighth costal cartilage reached almost the sternum, it did not articulate with it. Again, the anatomists differed. Lamb had stated that all the cases had been in Negroes, except one, and that one an Indian. But Luschka referred to a prevalent opinion among some anatomists, that this was an abnormality which occurred more frequently in the black races than in the white; yet, from his own observations, it occurred equally in both the black and white races. Hyrtl stated he saw the condition only in the female, and he was under the impression that it was largely due to the influence of tight lacing.

The PRESIDENT approved Professor Cunningham's organised system of investigation.

Arterial Trunks indicating Archaic or Unusual Courses of Nerve Trunks in the Limbs.

DR. BROOKS made a communication on this subject.

The author stated that he had been led to bring forward this subject by the examination of the nerves in the limbs of certain reptiles and amphibians. He had hitherto considered the vascular system, in the limbs, as too variable to afford material from which morphological conclusions could be drawn. But in examining the nerves of these lower forms of vertebrates, he had been struck by the resemblance which they presented to the arrangement of the arterial trunks in the higher mammalia—*e.g.*, man. An examination of the vessels and nerves in the limbs of a mammal would lead to the conclusion that the vascular and nervous trunks were laid down on very much the same lines—thus we find the main artery of the fore-limb (brachial) accompanied by a nerve-trunk of considerable size (median). Other instances were afforded by

the ulnar artery and nerve in the forearm for the greater part of their course—the posterior tibial vessels and nerve, &c. In many instances, however, a marked deviation from this arrangement might be observed. Thus, in the hind limb, the main artery passed in front of the thigh and the chief nerve behind it. Again, the arteries destined to supply the back of the forearm passed between the radius and ulna to reach their distribution, while the nerve wound round the neck of the radius; similarly, in the hind limb, the anterior tibial and anterior peroneal arteries passed forwards between the two bones of the leg, while the peroneal nerve wound round the neck of the fibula. The object of the present sketch (the author had not fully worked out the subject as yet) was to show that in some cases where the course of the nerve-trunk deviated from the arterial trunk in man, the arterial course indicated an older track of the nerve trunk. A few cases would now be given to illustrate this point.

In one of the lizards (*Varanus*) the brachial plexus terminated in two nerves—one corresponding to the circumflex and proximal part of the musculo-spiral, and the other forming a “great limb nerve,” which ran down the arm in the usual position of the brachial artery. This nerve divided at the elbow into an ulnar nerve and a “median trunk.” The latter gave off the nerves to supply the back of the forearm, and these nerves passed between the radius and ulna to reach their destination—the smaller occupying the position of the posterior interosseous artery, in man, and the larger the situation of the posterior branch of the anterior interosseous. In the alligator an example was given of a deep palmar arch of nerves which gave off branches to join the superficial digital nerves, thus affording an arrangement comparable, in its chief features, to the arrangement of the arteries in the hand of man. The nervous arrangements in the hind limb of *Cryptobranchus*, *Chameleon*, &c., resembled the human arrangement of the anterior tibial and anterior peroneal arteries. Other illustrative cases were described.

On the Nerve Supply of the Sternalis in an Anencephalous Fœtus.

The PRESIDENT (DR. BIRMINGHAM) read a paper upon the nerve supply of the musculus sternalis in an anencephalous fœtus—a subject of much interest at present, owing to the fact that an intercostal supply has been described for the muscle, both in addition to and without the anterior thoracic supply described by Professor Cunningham. In this case the sternalis was very large, and the central part of the great pectoral was absent on both sides. The usual nerve supply (from the external anterior thoracic nerve) was easily found, but in addition there was a twig of the fourth intercostal nerve, which pierced the intercostal muscles, and was distributed to the sternalis, entering its deep surface, and ramifying in its substance. The intercostal supply described was found only on the left side. At this stage of the dissection the specimen was shown to

Professor Cunningham, who was also of opinion that this was an intercostal supply for the muscle in question. To remove all doubt on the matter, Dr. Brooks kindly examined the nerve and bit of muscle by his acetic acid method, teasing out the specimen under the microscope. His examination changed the opinion formed about the nerve supply; it showed that the twig from the intercostal, which, as far as could be judged by the naked eye or a hand glass, was a nerve, contained no true nerve fibres, but was simply connective tissue. The case was brought forward to show how difficult it is, by ordinary naked eye examination, to recognise small nerves in such cases as this, and how easily mistakes may be made.

PROF. CUNNINGHAM said he did not doubt that it was a nerve until Dr. Brooks demonstrated that it was in reality a little vessel. He believed, and that, too, on the authority of Prof. Sheppard, of Montreal, whom he knew personally, and in whom he had the greatest trust, that the intercostal nerves supplied the rectus sternalis, but he had no belief whatever in other authorities who had, in Germany, recorded cases where this muscle was supplied by the intercostal nerves, and by the intercostal nerves alone. He believed cases would be found in which there was a double nerve supply, and he asked Dr. Thompson to state the result of recent investigations on the subject corroborating that view.

DR. W. HENRY THOMPSON said that, bearing out the view that the rectus sternalis was an aberrant slip of the pectoralis major, he had, at Prof. Cunningham's suggestion, traced the intercostal nerve in an ocelot to determine whether it gave any branches of supply to the pectoral muscle or not. It had been contended that the rectus sternalis received its only supply from the third and fourth intercostal nerves, but Prof. Cunningham had clearly proved that it invariably received a branch from the external anterior thoracic nerve; while, at the same time, he felt bound to believe that it might be supplied also from the intercostal nerves. It was, therefore, to determine whether the pectoralis (of which the rectus sternalis was, in Dublin, considered a slip) might not receive branches of supply from the intercostals also that the search was made, with the following result:—On tracing the intercostal nerve it was found, about an inch from the margin of the sternum, to give off a branch which perforated the intercostal muscles and distributed itself in the rectus abdominis, which here lay between the pectoralis and costal cartilages. Pursuing the trunk onwards it was then found, quite close to the edge of the sternum, to divide into two branches. One of these, after passing through the rectus, inclined outwards, and was seen to ramify in the pectoralis muscle. The other pierced both muscles lying close up to the vertebra, and was traced to the subcutaneous tissue, going evidently to the skin, which, however, had been removed. There was a remarkable difference in the appearance on dissection of these two

branches : the one going to the pectoralis gave off numerous twigs, forming a rich ramification in the muscle substance, but none of these could be traced through the muscle. The other had no appearance of subdivision till it passed through the muscle, and then it seemed to divide into two twigs—a small one directed inwards towards the middle line, and a larger one turning outwards. There had been as yet no time for examination with the microscope.

PROF. CUNNINGHAM said the authority who believed the muscle was supplied by the intercostal nerves sought from that to establish a different homology for it ; but the homology believed in Dublin to be the true one was that this muscle was a special part of the pectoralis major.

The Section adjourned.

SECTION OF SURGERY.

President—HENRY FITZGIBBON, M.D., M.Ch.; President of the Royal College of Surgeons, Ireland.

Sectional Secretary—MR. W. THORNLEY STOKER.

Friday, January 18, 1889.

MR. H. G. CROLY in the Chair.

The Treatment of Tuberculosis in and near Joints.

MR. M'ARDLE communicated the results of operative treatment in 41 cases of local tuberculosis. [It will be found at page 281.]

The CHAIRMAN remarked that early diagnosis and prompt treatment afforded the only chance of saving a diseased joint ; but, as a rule, cases were not met with in hospital practice until it was too late to adopt any procedure except resection or amputation.

MR. TOBIN concurred as to the necessity of early operation, but felt a difficulty in determining to what extent the tuberculous matter was thereby removed, whether completely, or only partially ; for instance, in resection, the surgeon often discovered centres of tubercle the existence of which he did not suspect at all, and, therefore, despite the satisfactory results, complete removal could not be alleged as producing the cure. He suggested that the cause of cure might be bone-drainage.

DR. MYLES was not satisfied that the evidence warranted an absolute diagnosis of tubercular disease of the joints. It was difficult to assume that a child in an advanced stage of emaciation, suffering from a good deal of fever would have only one or two nodules in the articular ends of the bone, and that the same exciting cause would not set up the disease in other parts of the body also ; and he regarded such a condition as entirely inconsistent with the pathology of tubercular disease of the

joints. There was at present a tendency to tubercular mania; so that a swelling which resisted ordinary skilled treatment was diagnosticated as tubercular, and the surgeon consoled himself in assuming that the disease was incurable. For his part, he regarded many of those cases as coming under the category of osteitis or inflammation of the bone of a non-tubercular character.

DR. FRAZER, speaking from many years' observation of scrofulous disease of the hip, said he never saw an isolated deposit of tubercle but the disease extended uniformly, even to the end of the femur and the pelvic bones.

DR. BALL asked how Mr. M'Ardle diagnosticated caseous deposits in the interior of the bones. He regarded the question of diagnosis as the great difficulty.

MR. THOMSON referred to the communications which had been made to the Academy by Mr. Thornley Stoker on the subject of trephining bones for certain conditions of inflammation, particularly in connection with the hip-joint, and by Sir Wm. Stokes on bone-drainage, and said he had never heard of any method of diagnosticating, not alone the presence but the actual position of a particular nest of tubercle in a bone. Therefore, he was in sympathy with Dr. Ball's question; for unless there were rules whereby the mass could be located, he did not see why the surgeon should bore into a bone and expect to gouge out a mass of tubercle. Mr. Stoker had justified the procedure which he advocated, on the reasonable ground that the boring effected drainage in the inflamed bone, and to that extent the operation did good. With regard to tuberculosis in connection with the synovial membranes, especially of the knee-joint and so-called erosion, every surgeon who had done excision of the knee, in which there had been extensive tuberculosis of the synovial membrane, knew the difficulty of getting rid of it, and yet they were now told that by a single incision all the unhealthy membrane could be removed, and the joint restored to its former condition. So far as his reading and experience went, the cutting out of the synovial membrane in pulpy degeneration of the knee-joint was an extremely difficult proceeding, even when combined with excision. There were, however, certain cases where the disease was limited, as not extending throughout the whole synovial membrane, and in these good joints might be secured; but, on the whole, the results published were not such as would induce surgeons who had had experience of resection and the condition of the membranes in cases of pulpy thickening, to adopt the practice suggested.

MR. M'ARDLE, in reply, said what he advocated was the removal of localised tubercular deposit in and near joints for the purpose both of obtaining movable joints and of preventing secondary tuberculosis, and the cases in which he had used the trephine were ones of chronic

osteo-myelitis. In cases of osteo-myelitis or osteitis, the question of diagnosis was a very simple one. No doubt, as to syphilitic tubercle or simple osteitis, there might be difficulties, but any surgeon, even of moderate experience, can, with the history before him, make a differential diagnosis. He agreed with what had been said in reference to the removal of the synovial membrane where the disease was generalised, and he said that the surgeon should not go on a wandering expedition in quest of diseased centres. He did not attempt to diagnosticate quiescent tubercular deposit in bone; but when it set up osteitis or osteo-myelitis, he could diagnosticate that, and act accordingly.

Stricture of the Urethra.

MR. TOBIN said a subject required an apology on account of its triteness only in cases where the trituration had resulted in uniformity of opinion. He founded the observations he was about to make chiefly on cases which were under his care while he was in charge of the surgical side, Royal Veterinary Hospital, Netley, where all invalid soldiers from abroad are sent, taking with them medical history sheets, in which has been recorded every incident affecting their health, and where, therefore, there are facilities, that do not exist in civil practice, of studying the origin and progress of disease. In the production of most of the severe and intractable cases of stricture, the documents above referred to seemed to show that syphilis, as well as gonorrhœa, was an important factor; gonorrhœa seemed to start the disease, syphilis to fix it. It started it in the horizontal portion of the urethra, because it was ill-drained. Observations in support of this theory were given, as also on the unsatisfactory results of treatment by gradual dilatation, and the advantages of internal urethrotomy by Maisonneuve's method. A straight urethrotome, otherwise of Maisonneuve's pattern, he considered handier than a curved one. *Rule for division of stricture.*—To cut towards nearest urethral wall—i.e., away from any mass of cicatricial tissue. The incision in narrow strictures, after being stretched—from longitudinal becomes transverse, and heals in that direction. *False passages.*—These, when made in the roof of the urethra, often rejoin the normal passage, where it is dilated and curved upwards beyond the stricture. *Pathological observations quoted in support of this statement.*—Attention directed to the not infrequent occurrence of a flow of putrid urine through catheter almost immediately after washing out of bladder. This explained, in a case recently examined *post mortem*, by the existence of a cavity = 6 oz. between wall of bladder and rectovesical fold of peritoneum. This communicated with the bladder through a small opening, and was no doubt produced by the injudicious use of an instrument in a sacculated bladder. The paper concluded with the narration of the case of a soldier from whose bladder a wire was removed, which had been passed in lieu of a catheter and had slipped backwards.

MR. W. THORNLEY STOKER said he had no reason either to change or to modify to any appreciable extent the opinions expressed in the paper which he brought before the Academy some years ago, and he cordially agreed with the observations of Mr. Tobin, noting particularly his extremely interesting and important observation on the effect of syphilis in cases of old-standing stricture. One of the operations referred to, which was misnamed "immediate dilatation," and which ought to be designated "rupturing the stricture," as described by Holt and Richardson, was attended with untoward and often dangerous results. Like Mr. Tobin, he had laid stress on incision in the roof of the urethra and not in its floor, and the instrument which he recommended was Maisonneuve's. It was better to incise the roof, even though the stricture generally lay in its floor, as there was more likelihood of incising healthy tissue. Mr. Tobin's custom was to pass a full-size instrument, 14 or 16, according to the size of the penis, three days after the operation and thence onwards; but he passed the instrument the day after the operation, and every day afterwards for a week or two. Then he diminished the employment of the bougie to once a week, teaching the patient to pass it for himself.

MR. TOBIN, in reply, said he should always cut, if possible, into sound tissue; but he could not always adopt the rule of cutting into the roof. He cut towards the urethral wall at the side away from the obstruction as far as the indications suggested; but when in doubt if the opening in the stricture was central or unascertainable when the obstruction was in the floor, then he would cut through the roof.

The Section adjourned.

FOREIGN BODY IN LARYNX.

DR. KLEIN reports (*Polyclinic*, Dec., 1888) a case of death from impaction of food in the larynx, due to paralysis following diphtheria in a child aged eight years. The child, contrary to the directions of the doctor, was permitted to feed herself, and whilst doing so died from suffocation.

SPORADIC CHYLURIA.

PROFESSOR HODDLEY, at a meeting of the Chicago Pathological Society, of Nov. 12th, reports a case of sporadic chyluria in a young man, twenty-two years of age, of excellent habits and good health:—"He passes clear urine in the evening. During the middle of the day he will pass many coagula that are sometimes translucent, and at other times milky white. No filaria have been discovered."—*Chicago Medical Journal and Examiner*, Dec., 1888.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. MOORE, B.A., M.D., Univ. Dubl.; F.K.Q.C.P.
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VITAL STATISTICS

For four Weeks ending Saturday, February 23, 1889.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	Feb. 2.	Feb. 9.	Feb. 16.	Feb. 23.		Feb. 2.	Feb. 9.	Feb. 16.	Feb. 23.
Armagh -	31·0	15·5	5·2	10·3	Limerick -	18·9	29·7	28·3	24·3
Belfast -	27·0	29·3	28·2	25·2	Lisburn -	9·7	9·7	14·5	19·3
Cork -	31·8	28·6	30·5	25·3	Londonderry	21·4	30·3	16·0	21·4
Dragheda	25·4	8·5	38·1	12·7	Lurgan -	15·4	20·5	25·7	61·6
Dublin -	26·7	23·9	28·9	30·3	Newry -	28·1	7·0	24·6	17·6
Dundalk -	13·1	8·7	39·3	48·0	Sligo -	4·8	14·4	19·2	14·4
Galway -	6·7	16·8	6·7	23·5	Waterford -	16·2	23·2	37·0	25·5
Kilkenny	21·1	42·3	21·1	29·6	Wexford -	25·7	25·7	12·8	8·6

In the week ending Saturday, February 2, 1889, the mortality in twenty-eight large English towns, including London (in which the rate was 18·8), was equal to an average annual death-rate of 20·0 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·4 per 1,000. In Glasgow the rate was 25·1, and in Edinburgh it was 19·1.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 25·3 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·9 per 1,000, the rates varying from 0·0 in eleven of the districts to 4·2 in Kilkenny. The 5 deaths from all causes registered in that district comprise 1 from diarrhoea. Among the 119 deaths from all causes registered in Belfast are 1 from typhus, 2 from whooping-cough, 2 from diphtheria, 6 from enteric fever, and 5 from

diarrhœa. The 49 deaths in Cork comprise 4 from whooping-cough, and the 12 deaths in Londonderry comprise 1 each from measles and diarrhœa.

In the Dublin Registration District the births registered during the week amounted to 214—115 boys and 99 girls; and the deaths to 187—105 males and 82 females.

The deaths, which were 54 below the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 27·6 in every 1,000 of the estimated population. Omitting the deaths (6 in number) of persons admitted into public institutions from localities outside the district, the rate was 26·7 per 1,000. During the first five weeks of the current year the death-rate averaged 29·6, and was 5·0 below the mean rate in the corresponding period of the ten years 1879–88.

Only 12 deaths from zymotic diseases were registered, being 5 under the number for the preceding week, and 23 below the average for the fifth week of the last ten years. They comprise 2 from measles, 3 from scarlet fever (scarlatina), 4 from enteric fever, 1 from dysentery, 1 from erysipelas, &c.

Nine cases of enteric fever were admitted to hospital, being 6 over the admissions for the preceding week, but 8 under the number for the week ended January 19. Eleven enteric fever patients were discharged, and 59 remained under treatment on Saturday, being 2 under the number in hospital at the close of the preceding week.

Twenty-six cases of measles were admitted to hospital against 3 for the preceding week—34 cases of the disease remained under treatment in hospital on Saturday.

The hospital admissions for the week include also 3 cases of typhus and 6 of scarlatina; 12 cases of the former and 38 of the latter disease remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered is 45, being 23 below the average for the corresponding week of the last ten years, and 15 under the number for the week ended January 26. The 45 deaths comprise 26 from bronchitis and 11 from pneumonia or inflammation of the lungs.

In the week ending Saturday, February 9, the mortality in twenty-eight large English towns, including London (in which the rate was 17·5), was equal to an average annual death-rate of 19·1 per 1,000 persons living. The average rate for eight principal towns of Scotland was 22·3 per 1,000. In Glasgow the rate was 26·9, and in Edinburgh it was 19·3.

The average annual death-rate in the sixteen principal town districts of Ireland was 25·2 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts

were equal to an annual rate of 2·7 per 1,000, the rates varying from 0·0 in nine of the districts to 12·7 in Kilkenny. The 10 deaths from all causes registered in that district comprise 1 from typhus and 2 from diarrhoea. Among the 129 deaths from all causes registered in Belfast are 1 from scarlatina, 1 from whooping-cough, 2 from simple-continued fever, 7 from enteric fever, and 2 from diarrhoea. The 44 deaths in Cork comprise 1 from typhus, 6 from whooping-cough, 1 from simple continued fever, and 1 from diarrhoea. Of the 22 deaths in Limerick, 1 was caused by scarlatina and 1 by simple continued fever. Among the 17 deaths in Londonderry are 1 from measles and 1 from diphtheria, and the 10 deaths in Waterford comprise 2 from diphtheria.

In the Dublin Registration District the births registered during the week amounted to 192—105 boys and 87 girls; and the deaths to 166—79 males and 87 females.

The deaths, which were 76 below the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 24·5 in every 1,000 of the estimated population. Omitting the deaths (4 in number) of persons admitted into public institutions from localities outside the district, the rate was 23·9 per 1,000. During the first six weeks of the current year the death-rate averaged 28·8, and was 6·1 below the mean rate in the corresponding period of the ten years 1879–88.

Eighteen deaths from zymotic diseases were registered, being 6 over the low number for the preceding week, but 13 below the average for the 6th week of the last ten years. They comprise 3 from scarlet fever (scarlatina), 3 from whooping-cough, 1 from ill-defined fever, 4 from enteric fever, 3 from diarrhoea, 1 from erysipelas, &c.

Ten cases of enteric fever were admitted to hospital, against 9 for the preceding week; 14 enteric fever patients were discharged, 1 died, and 54 remained under treatment on Saturday, being 5 under the number in hospital on Saturday, February 2.

Five cases of typhus and 5 of scarlatina were admitted to hospital, against 3 cases of the former and 6 of the latter disease admitted during the preceding week; 16 cases of typhus and 36 of scarlatina remained under treatment in hospital on Saturday.

The number of admissions of cases of measles, which had risen from 3 in the week ended January 26 to 26 in the following week, fell to 5 this week: 31 cases of this disease remained under treatment in hospital on Saturday.

Deaths from diseases of the respiratory system, which had fallen from 60 in the week ended January 26 to 45 in the following week, fell this week to 33, which number is 34 below the average for the corresponding week of the last ten years. The 33 deaths comprise 20 from bronchitis, 7 from pneumonia or inflammation of the lungs, and 2 from croup.

In the week ending Saturday, February 16, the mortality in twenty-eight large English towns, including London (in which the rate was 18·2), was equal to an average annual death-rate of 19·8 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·6 per 1,000. In Glasgow the rate was 22·6, and in Edinburgh it was 16·2.

The average annual death-rate represented by the deaths registered this week in the sixteen principal town districts of Ireland was 27·5 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·2 per 1,000, the rates varying from 0·0 in nine of the districts to 13·1 in Dundalk—the 9 deaths from all causes registered in that district comprising 3 from scarlatina. Among the 124 deaths from all causes registered in Belfast are 1 from measles, 2 from whooping-cough, 2 from diphtheria, 1 from enteric fever, and 7 from diarrhoea. The 47 deaths in Cork comprise 3 from whooping-cough, and the 21 deaths in Limerick comprise 3 from scarlatina and 1 from typhus.

In the Dublin Registration District the births registered during the week amounted to 165—73 boys and 92 girls; and the deaths to 199—93 males and 106 females.

The deaths, which were 39 below the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 29·4 in every 1,000 of the estimated population. Omitting the deaths (3 in number) of persons admitted into public institutions from localities outside the district, the rate was 28·9 per 1,000. During the first seven weeks of the current year the death-rate averaged 28·8, and was 6·1 below the mean rate in the corresponding period of the ten years, 1879–88.

Only 16 deaths from zymotic diseases were registered, being 16 below the average for the corresponding week of the last ten years, and 2 under the number for the week ended Saturday, February 9. They comprise 3 from measles, 1 from typhus, 5 from whooping-cough, 1 from ill-defined fever, 1 from enteric fever, 1 from diarrhoea, &c.

The number of cases of enteric fever admitted to hospital during the week was 6, being a decline of 4 as compared with the admissions for the preceding week. Eleven enteric fever patients were discharged. 1 died, and 48 remained under treatment on Saturday, being 6 under the number in hospital on Saturday, February 9.

Only two cases of typhus and 4 of scarlatina were admitted against 5 cases of each of these diseases admitted during the preceding week. Fourteen cases of typhus and 39 of scarlatina remained under treatment in hospital on Saturday.

The hospital admissions for the week include also 6 cases of measles. Twenty-four cases of this disease remained under treatment in hospital

on Saturday, being 7 under the number at the close of the preceding week.

Thirty-nine deaths from diseases of the respiratory system were registered, being 6 over the number for the preceding week, but 27 under the average for the seventh week of the last ten years. They comprise 24 from bronchitis, 8 from pneumonia or inflammation of the lungs, and 2 from croup.

In the week ending Saturday, February 23, the mortality in twenty-eight large English towns, including London (in which the rate was 18·8), was equal to an average annual death-rate of 19·9 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·2 per 1,000. In Glasgow the rate was 26·2, and in Edinburgh it was 20·4.

The average annual death-rate in the sixteen principal town districts of Ireland was 27·0 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·4 per 1,000, the rates varying from 0·0 in Galway, Newry, Drogheda, Wexford, Dundalk, Sligo, and Armagh to 10·3 in Lurgan. The 12 deaths from all causes registered in the last-named district comprise 1 from measles and 1 from diarrhoea. Among the 111 deaths from all causes registered in Belfast are 2 from scarlatina, 1 from typhus, 1 from diphtheria, 2 from enteric fever, and 4 from diarrhoea. The 39 deaths in Cork comprise 6 from whooping-cough and 1 from diarrhoea. Among the 12 deaths in Londonderry are 2 from measles, and the 7 deaths in Kilkenny comprise 1 from typhus and 1 from diphtheria.

In the Dublin Registration District the births registered during the week amounted to 218—104 boys and 114 girls; and the deaths to 210—115 males and 95 females.

The deaths, which were 12 below the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 31·0 in every 1,000 of the estimated population. Omitting the deaths (5 in number) of persons admitted into public institutions from localities outside the district, the rate was 30·3 per 1,000. During the first eight weeks of the current year the death-rate averaged 29·1, and was 5·6 below the mean rate in the corresponding period of the ten years, 1879–88.

Nineteen deaths from zymotic diseases were registered, being 3 over the number for the preceding week, but 10 under the average for the 8th week of the last ten years. They comprise 5 from measles, 3 from whooping-cough, 4 from enteric fever, 2 from diarrhoea, &c.

Eleven cases of enteric fever were admitted to hospital, being 5 in excess of the admissions for the preceding week. Eleven enteric fever patients were discharged during the week, 1 died, and 47 remained under

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The number of cases of enteric fever admitted to hospital during the week was 6, being a decline of 4 as compared with the admissions for the preceding week. Eleven enteric fever patients were discharged, 1 died, and 48 remained under treatment on Saturday, being 6 under the number in hospital on Saturday, February 9.

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Nineteen deaths from zymotic diseases were registered, being 3 over the number for the preceding week, but 10 under the average for the 8th week of the last ten years. They comprise 5 from measles, 3 from whooping-cough, 4 from enteric fever, 2 from diarrhœa, &c.

Eleven cases of enteric fever were admitted to hospital, being 5 in excess of the admissions for the preceding week. Eleven enteric fever patients were discharged during the week, 1 died, and 47 remained under

treatment on Saturday, being 1 under the number in hospital on Saturday, February 16.

Three cases of typhus and 3 of scarlatina were admitted to hospital against 2 cases of the former and 4 of the latter disease admitted during the preceding week. Eleven cases of typhus and 35 of scarlatina remained under treatment in hospital on Saturday.

Forty-three deaths from diseases of the respiratory system were registered, being 4 over the number for the preceding week, but 15 under the average for the 8th week of the last ten years. They comprise 25 from bronchitis, 9 from pneumonia or inflammation of the lungs, and 3 from croup.

METEOROLOGY.

*Abstract of Observations made in the City of Dublin, Lat. 53° 20' N.
Long. 6° 15' W., for the Month of February, 1889.*

Mean Height of Barometer,	-	-	-	29.991 inches.
Maximal Height of Barometer (on 4th, at 9 p.m.),				30.474 "
Minimal Height of Barometer (on 10th, at 6 p.m.),				29.189 "
Mean Dry-bulb Temperature,	-	-	-	39.6°.
Mean Wet-bulb Temperature,	-	-	-	37.8°.
Mean Dew-point Temperature,	-	-	-	35.1°.
Mean Elastic Force (Tension) of Aqueous Vapour,	-			.210 inch.
Mean Humidity,	-	-	-	84.1 per cent.
Highest Temperature in Shade (on 1st),	-			55.0°.
Lowest Temperature in Shade (on 11th),	-			21.7°.
Lowest Temperature on Grass (Radiation) (on 11th),				14.9°
Mean Amount of Cloud,	-	-	-	65.8 per cent.
Rainfall (on 20 days),	-	-	-	2.449 inches.
Greatest Daily Rainfall (on 10th),	-	-	-	.742 inch.
General Directions of Wind,	-	-	-	N.W., W.

Remarks.

This was an unsettled, windy, wet, and cold month. North-westerly winds preponderated, and while the barometer was often high off the W. and S.W. of Ireland, deep atmospherical depressions passed south-eastwards across Scandinavia and the North Sea, producing cold N.W. winds and frequent showers of sleet and hail. On the 10th a severe snowstorm occurred, and the weather was generally inclement.

In Dublin the mean temperature (40.3°) was much below the average (43.0°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 39.6°. In the twenty-four years ending with 1888, February was coldest in 1873 (M. T. = 37.9°) and warmest in 1869 (M. T. = 46.7°). In 1886, the M. T. was 39.7°, in the year 1879 (the cold year), it was 40.1°, and

in 1888 it was as low as 38·6°. As a general rule, February in Dublin is only a shade colder than March.

The mean height of the barometer was 29·991 inches, or 0·129 inch above the average value for February—namely, 29·862 inches. The mercury rose to 30·474 inches at 9 p.m. of the 4th, and fell to 29·189 inches at 6 p.m. of the 10th. The observed range of atmospherical pressure was, therefore, 1·285 inches—that is, a little over one inch and a quarter. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 39·6°, or 2·3° below the value for January, 1889; that calculated by Kaemtz's formula—viz., $\text{min.} + (\text{max.} - \text{min.} \times \cdot 41) = \text{Mean Temp.}$ —from the means of the daily maxima and minima was 39·4°, or 3·1° below the average mean temperature for February, calculated in the same way, in the twenty years, 1865–84, inclusive (42·5°). The arithmetical mean of the maximal and minimal readings was 40·3°, compared with a 23 years' average of 43·0°. On the 1st, the thermometer in the screen rose to 55·0°—wind W.S.W.; on the 11th, the temperature fell to 21·7°—wind W.N.W. The minimum on the grass was 14·9° also on the latter date. The rainfall was 2·449 inches, distributed over no fewer than 20 days. The average rainfall for February in the twenty-three years, 1865–87, inclusive, was 2·183 inches, and the average number of rainy days was 17·3. The rainfall and the rainy days, therefore, were both considerably above the average. In 1883 the rainfall in February was large—3·752 inches on 17 days; in 1879 also 3·706 inches fell on 23 days. On the other hand, in 1873, only ·925 of an inch was measured on but 8 days; and in 1887, only ·541 inch of rain fell on 11 days. The rainfall in 1887 was much the smallest recorded in February for very many years. Snow or sleet fell on the 2nd, 8th, 9th, 10th, 25th, 26th, 27th, and 28th. Hail fell on the 1st, 4th, 8th, 10th, 24th, 26th, and 27th. The atmosphere was foggy on the 15th, 24th, 27th, and 28th. High winds were noted on 13 days, reaching the force of a gale on five days—the 1st, 2nd, 3rd, 8th, and 13th. The temperature exceeded 50° in the screen on 8 days, compared with the same number of days in January; while it fell to or below 32° in the screen on only 4 days, compared with only 3 in January, but with 12 in February, 1888. The minima on the grass were 32°, or less, on 21 nights, compared with 16 nights in January. On 7 days the thermometer did not rise to 40° in the screen.

On Friday, February 1, a fresh westerly gale prevailed, and temperature—which had been very high during the previous *night* (55° in Dublin)—gave way rapidly with squalls of rain and hail. Saturday, the 2nd, proved the most inclement day as yet felt in the present winter—a fresh westerly gale blowing with frequent falls of snow and bitter cold. The thermometer rose to 55·0° on the early morning of Friday (wind, W.S.W.), and fell to 33·0° on Saturday evening (wind W.). At 8 a.m.

of this day the barometer was down to 28·46 inches at Sumburgh Head in the Shetlands. Strong N.W. gales, snow and hail, thunder and lightning prevailed in many parts of the Kingdom, and in Dublin ·352 of an inch of rain fell in the form of snow.

The weather was very unsettled and changeable during the week ended Saturday, the 9th. Severe extensive and deep depressions travelled south-eastwards across Northwestern Europe, causing rapid changes of temperature, and westerly to northerly gales, with frequent showers of rain or hail and snow. On Sunday a very deep depression was passing down the North Sea, accompanied by severe northerly gales and thunder and lightning in many parts of the United Kingdom. In the rear of the disturbance the barometer rose with great rapidity—nearly an inch and a half at Aberdeen in the 24 hours ending 8 a.m. of Monday. During the next two days areas of low pressure crossed Scandinavia from N.W. to S.E., and the weather was dull, damp, and showery. On Wednesday night a subsidiary depression passed rapidly across the British Islands in the same direction—rain and hail squalls were reported from many stations. During Friday and Saturday another very deep depression travelled south-eastwards down the North Sea, the accompanying gales being of great intensity. In Scotland snow fell heavily, with keen frost, and in Ireland the air became very dry and cold. Sharp frost set in on Saturday. In Dublin the mean height of the barometer was 29·963 inches—pressure varying from 29·471 inches at 9 a.m. of Sunday (wind, W.N.W.) to 30·474 inches at 9 p.m. of Monday (wind, N.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 39·1°, or 6° below the value for the previous week. The arithmetical mean of the highest and lowest daily temperatures was 39·8°. Temperature in the screen rose to 49·5° on Wednesday (wind, W.) and Thursday (wind, W.N.W.), and fell to 29·0° on Saturday (wind, N.W.). Rain fell on six days to the amount of ·242 inch, including ·117 inch entered to Wednesday. Hail and snow fell on two days.

Very changeable, inclement weather held during the greater part of the week ended Saturday, the 16th, which began with a snowstorm and ended with warmth and squalls. On Sunday two depressions crossed Ireland and England—the first from W. to E., the second from W.N.W. to E.S.E.—both travelling with great speed. In Dublin, fine dry snow began to fall at 6 a.m., with a temperature of 29·0°. As the forenoon wore on, the snowfall increased. In the afternoon a thaw occurred and frozen rain and hail were followed by rain and a shift of wind from S.E. to W. In the evening a further shift of wind to N.N.E. took place and snow and hail again fell heavily. On Monday morning there was an intense frost. Tuesday was again fair and frosty, but at night a lunar halo foretold a change. Wednesday was dull and rainy, and at night there was a fresh gale from W.S.W., temperature rising to 53·1°. Thursday and Friday were cool, quiet days, but on Friday evening there was again a lunar halo.

and Saturday was rainy and squally to mild and fine. At Dungeness, in Kent, temperature rose 26° (from 18° to 44°) in the twenty-four hours ending 8 a.m. of Thursday. In Dublin the mean height of the barometer during the week was 29.846 inches—pressure ranging from 29.189 inches at 6 p.m. of Sunday (wind, W.) to 30.367 inches at 9 a.m. of Tuesday (wind, W.N.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 37.3° , while the mean temperature derived from the daily maxima and minima was 37.5° . The thermometers in the screen fell to 21.7° on Monday (wind, W.N.W.) and rose to 54.7° on Saturday (wind, W.S.W.). The rainfall amounted to 1.127 inches on four days. Of this quantity, .742 inch was the result of melted snow and hail on Sunday.

As regards the third week (17th–23rd inclusive), at first mild, soft, and cloudy, the weather afterwards became cooler, drier, and brighter, as barometrical gradients for northerly winds developed over Western Europe. Until Wednesday an anticyclone was found over Spain, the Bay of Biscay, and France; while areas of low pressure passed in a direction towards E. or S.E. across the Norwegian Sea and Scandinavia. Westerly winds and mild, cloudy weather prevailed during this period, except in the north of Sweden where the cold was very intense. On Thursday, the isobars ran nearly due N. and S., and the wind drew into N. with a general fall of temperature and cold showers in Great Britain. Next day a shallow depression passed southwards across Ireland, causing a higher temperature for the time being and showers. On Saturday the wind shifted to E. and became dry and searching—the relative humidity in Dublin falling to 64 per cent. at 9 p.m. In this city the mean height of the barometer was 30.301 inches—pressure ranging from 30.142 inches at 9 a.m. of Sunday (wind, W.S.W.) to 30.466 inches at 9 a.m. of Tuesday (wind, W.N.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 44.9° , while the mean of the daily maxima and minima was 45.8° . Temperature in the screen rose to 54.5° on Monday (wind, S.W.) and fell to 35.1° on Friday (wind, W.). Rain was registered on four days, the total quantity being .109 inch, of which .060 inch was credited to Friday. At 8 a.m. of Saturday, February 23rd, temperature in Western Europe ranged from -5° Fahr. at Hernösand in Sweden, 12° at Munich, and 19° at Lyons, to 47° at Belmullet and Valentia Island, Kerry.

Very inclement weather prevailed throughout the closing period of the month (from the 24th to the 28th, inclusive). Barometrical gradients for easterly (N. to E. and S.E.) winds held over Western Europe, so that a polar air-current held, temperature ruled very low, and snow and hail fell frequently and on the east coasts of Great Britain and Ireland in considerable quantity. In the West of Ireland, fine, bright, frosty weather prevailed for the most part, but in the East clouded skies and snow were experienced. At 8 a.m. of Thursday, the 28th, the thermometer was only 21° in the screen at Parsonstown, King's Co.

The rainfall in Dublin during the two months ending February 28th has amounted to 4·662 inches on 36 days, compared with 2·344 inches on 23 days during the same period in 1888, and a 23 years' average of 4·424 inches on 35·0 days. Double as much rain as fell in January and February of last year has fallen in the same months this year.

At Greystones, Co. Wicklow, the rainfall in February, 1889, was 2·69 inches, distributed over 14 days. Of this quantity 1·12 inches fell in the form of snow on the 10th. Since January 1st, 6·26 inches of rain have fallen on, however, only 22 days.

PERISCOPE.

ENEMATA IN ENTERIC FEVER.

IN the Polish weekly *Gazeta Lekarska*, No. 28, 1888, Dr. J. Fychowski writes that he obtained excellent results from administering enemata, made of boiled water (at the ordinary room-temperature), three or four times a day, in cases of typhoid fever complicated with severe cerebral symptoms (delirium, apathy, &c.), and highly offensive stools. Enemata made of a three per cent. solution of permanganate of potassium are said to act still better. The *rationale* of Dr. Fychowski's treatment may be easily surmised. The cerebral symptoms result from poisoning of the patient's system by products of decomposition of accumulated fæces.—*St. Louis Medical and Surgical Journal*, Vol. LV., No. 6.

AKROMEGALIA.

DR. ADLER, at a meeting of the New York County Medical Association, exhibited a case of akromegalia. The patient, a German woman, aged thirty-four, who had, until her eighteenth or twentieth year, enjoyed good health, after which age she first noticed a swelling of her feet. She married at twenty, and in three years her wedding-ring had to be cut off, owing to the swelling of her finger. She suffered much from pain in the back, migraine, and weakness. She was unable to walk, and had to lie in a semi-recumbent position. The head became enlarged and the lower jaw began to project most markedly. The tongue was enlarged and flabby, and after a little time the teeth separated from each other. The submaxillary gland and the glands and lymphatics of the neck enlarged. There was no trace of the thymus gland, and the right lobe of the thyroid was wanting. The adipose tissue was not increased. The finger-nails were normal. All the bone tissue was enlarged; the muscles flabby and atrophied; the skin thickened, but still moist and pliant. In parts which were enlarged there was marked hyperæsthesia. The viscera were normal. Her appearance was dull and listless. Ophthalmoscopic examina-

tion revealed nothing (*Boston Med. and Surg. Jour.*, Nov. 22nd, 1888). About eleven cases of this peculiar disease have already been published. Quite recently Erb, of Heidelberg, published a case occurring in a woman aged fifty-eight. The autopsy reveals hyperplasia of the brain and sympathetic nerves, but the hyperplasia is particularly marked in bone and cartilage, enlargements to which are principally due the deformity and nodular enlargements. The ætiology of the disease is very obscure.

STRYCHNIN IN THE BODY AFTER DEATH.

In a paper read before the Medical Jurisprudence Society of Philadelphia, Pa., Mr. Alfred H. Allen, President of the Society of Public Analysts of Great Britain, states that strychnin remains unaltered, for years, in the dead body. In one case he detected its presence seven years after death, and in another there was no difficulty in recognising the strychnin, though over nine years had elapsed.—*The Polyclinic*, Philadelphia, Vol. VI., No. 6.

ATROPHY OF THE STOMACH.

DR. BAYARD HOLMES, in a case of carcinoma of the pharynx and œsophagus, in which he performed the operation of gastrostomy, reports that "the stomach was so much atrophied that it was scarcely four inches long."—*The Chicago Medical Journal and Examiner*, Vol. LVII., No. 6.

PICRO-ADONIDIN.

THE true active principle of *adonis vernalis*, according to Professor Podwissotzky, is picro-adonidin, an amorphous glucoside. It is easily soluble in water, alcohol, and ether, and acts as a powerful cardiac poison.—*The American Practitioner and News*, Louisville, Ky., 22nd Dec., 1888.

FOREIGN BODY IN PERITONEAL CAVITY.

J. L. CRAWFORD, M.D., Greensburg, Pa., reports the case of a patient twenty-eight years old. On July 16, having passed her regular time for menstruation, she concluded that she was pregnant, and at the suggestion of a friend, in order to bring the matters right, she resorted to the use of a lead pencil, passing it as she thought into the womb. Hæmorrhage came on in a short time afterward, and an hour later when she attempted to remove the pencil she could not find it; but felt confident that it had not come away. Eighteen days after a very tender spot appeared on her abdomen, at a point three inches below and two inches to the right of the navel. Two days afterwards peritonitis had fully developed, and she had suffered intense pain during Sunday and Sunday night; her abdomen was swollen and tympanitic; and her pulse was one hundred, and wiry. Dr. Crawford made an incision through the belly-wall about eight inches long in the median line, commencing near the navel. The pencil was soon found

lying transversely, one end near the navel and the other penetrating the ascending colon. The edges of the wound in the colon were freshened and closed by three fine cat-gut sutures. The pencil was an ordinary lead pencil, six and three-fourths inches long, with a smooth brass cap on the end, which she says she passed first. The lead and glue were softened. The pencil was removed intact, yet it fell apart when exposed to the air.—*Phil. Med. and Surg. Reporter*, 15th Dec., 1888.

QUININE RASH.

At the last meeting of the Clinical Society of London (March 8th) Dr. Burney Yeo gave his personal experience of the effects of quinine. A quarter of a grain of the alkaloid produced an erythematous rash, which, on every occasion, "was strictly limited to the lower extremities, extending up to the groins, but never beyond that limit." The remarkable fact is that the author had for years used the drug without previously having experienced any unpleasant results, and that it should suddenly produce a decided cutaneous disorder.

WHITE AND BLACK.

In Alabama, U. S. A., a negress, aged eighteen, has given birth to twins, one of which is "as black as the ace of spades," and the other as white as any white child.—*Maryland Medical Journal*.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Fletcher's Syrup of the Hydrobromates with Strychnin.

MESSRS. FLETCHER, FLETCHER, & STEVENSON, of London, have recently introduced a new syrup of the hydrobromates, which is intended to combine several therapeutical properties—namely, the sedative action of a bromide, the tonic action of quinine, the blood-making property of iron, and the nerve-restoring power of strychnin. This preparation is called "Syrupus Ferri, et Quiniæ, et Strychniæ Hydrobromatum," but may be prescribed as "*Syr. Hydrobrom. cum Strychnid (Fletcher)*." The dose is one teaspoonful in half a wineglassful of water, either with or immediately after meals. This syrup should always be measured in a glass and not allowed to come into contact with any metal. For convenience, it is sold in four-ounce bottles, packed in a neat case, and accompanied with a glass drachm measure and a glass stirring rod.

We have prescribed the compound syrup of the hydrobromates with advantage in pulmonary consumption, and as a restorative after an exhausting "cold." It is a very sightly preparation and is not unpalatable as such medicines go. There is no doubt that it is a valuable nervine tonic and general restorative.

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NOTICES TO CORRESPONDENTS.

In future no papers will be inserted as "Original Contributions" except on the distinct understanding that they are sent for publication to this Journal alone, and that only abstracts of them (with due acknowledgment) shall afterwards appear elsewhere.

Authors of "Original Communications" will please consider themselves bound in honour to a strict observance of this understanding.

Authors of Communications are requested to write the prescriptions in their paper in full, and in English.

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THE DUBLIN JOURNAL OF MEDICAL SCIENCE.

MAY 1, 1889.

PART I. ORIGINAL COMMUNICATIONS.

ART. XX.—*Select Clinical Reports.** By C. J. NIXON, M.B., LL.D., Univ. Dubl.; M.D. (Hon. Causâ), R.U.I.; F.K.Q.C.P.; Senior Physician, Mater Misericordiæ Hospital; and Professor of Practice of Medicine, Catholic University.

MYXEDEMA.

As during a previous Session I had an opportunity of bringing under the notice of the Academy an instance of myxœdema, I shall only direct attention in the briefest manner to the points in the present case which identify it with the type of disease so fully described by Sir William Gull, Ord, and others. In diseases which may be regarded as comparatively new, as far as their recognition is concerned, there is some need for recording cases with a view of establishing facts in reference to ætiology, pathology, and symptomatology. The patient exhibited is a married woman, aged forty-seven, a tailoress by occupation, and a native of Landau, in Bavaria. The district is a very mountainous one, but there is no prevalence of goitre in it. The patient's family history is satisfactory in all respects. Living in Ireland for the past 23 years, she enjoyed perfectly good health up to six years ago. She had not experienced any special privations; never suffered want, as regards either food or clothing, and had no occasion for mental distress. About six years ago she fainted one

* Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, March 1, 1889. [For the discussion on this paper see page 437.]

day whilst in church, and subsequently suffered from severe chill whilst walking homewards on a wintry night. From this time she never felt strong, and a year afterwards some swelling occurred in the upper part of the right cheek and right upper lid. The swelling, according to her statement, was confined to the right side for 12 months, when the left cheek and eyelid became affected. At this time she got very stout and bulky; her feet and legs were much swollen, and she became unfit to undertake any active form of exercise. Menstruation was scanty but regular in its occurrence.

The symptoms noted since she came under my care in hospital are as follows:—

Shiny-white and pasty appearance of the face, with a faint circumscribed pinkish tint over malar bones. In front of right ear is a small patch, apparently of an ecchymotic nature, which has recently made its appearance. Very marked œdema of the upper eyelids, which present a waxy white aspect. The lids pit upon pressure, but not at all to the same extent as in the ordinary forms of œdema. There is considerable swelling of the lips and tongue, and the movements of the former are sluggish and clumsy, especially when the patient speaks. The *alæ nasi* have become widened out, and the patient states that her appearance is so altered that intimate friends have been unable to recognise her. The skin under the chin is loose and baggy.

The teeth are decayed, and there is constantly an extremely foetid odour from the patient's breath, of which she does not appear to be sensible. The skin over the body is harsh, dry, and furfureous in most parts, and the hair in the axillæ and over the pubes is extremely thin. There is evidence of œdema in the legs and trunk; pitting on pressure can in parts be demonstrated. The movements of the patient in locomotion, like her method of speaking, are slow and deliberate. She has always a feeling of chilliness over her, especially in her legs, and she complains of an absence of sensibility in the soles of the feet. Her temperature during her stay in the hospital has never been above 97° F., and on one occasion it fell below 96°. The feet and hands exhibit the harsh, dry condition of the skin noted in this disease, but the spade-like appearance of the latter described by Sir William Gull is scarcely marked.

The heart is normal as regards percussion, and the sounds, though weak, are free from murmur. The impulse beat is indistinct, but in the usual position. The pulse is very weak and com-

pressible; it ranges between 56 and 72 beats in the minute. The sphygmogram exhibited shows its characters. The patient's mental condition is one of extreme placidity. Even allowing for the *sang froid* of the German character, there is a remarkable degree of mental inertia about her. She has latterly become very drowsy, and it is with difficulty she can prevent herself from going asleep during the day. There is no affection of the special senses except that of hearing, which is somewhat impaired.

The urine has been repeatedly examined by the heat, nitric acid and picric acid tests. It presents no trace of albumen, and is free from tube casts. A careful examination of the blood and oedematous fluid was made for me by Dr. McWeeney, pathologist to the hospital. The fluid removed from the eyelids contained an appreciable amount of mucin; in the blood a moderate increase of the white cells was noted.

An examination of the patient's neck shows complete atrophy of the thyroid gland. Some remains of it may be felt crossing the trachea, but there is no trace of the lateral lobes. Above the clavicles, in the space between the sterno-mastoid and trapezei muscles, are to be observed soft, doughy swellings, apparently collections of adipose tissue.

Tabulating the symptoms existing in myxœdema, we find them to be as follows:—

Oedematous infiltration of cellular tissue, with a fluid rich in mucin.

Trophic disturbances in the skin and its appendages.

Sluggishness of movement, and a feeble and languid circulation, with low bodily temperature.

Slow processes of cerebation, and a placid and gentle temperament.

Atrophy of the thyroid body.

Probably the best way of describing the nature of myxœdema is to regard it as a trophoneurosis, originating in atrophy or removal of the thyroid gland. Its greater frequency in women than in men, irrespective of its occurrence as a result of operative procedure, when the ratio is the same in both sexes, appears to be connected with the close relation which the thyroid gland has to menstruation.

It is remarkable that two glands, both ductless and vascular, like the suprarenal capsule and the thyroid, should in disease produce conditions almost malignant in their course and effects. Disease in both involves material changes in the blood, and in

both the connection of those changes with the primary lesion is by no means clear. Taking into consideration the structure of the medullary part of the suprarenal capsule, and its close relation with the semilunar ganglion, it is intelligible that an irritation propagated from it may be the initial starting-point of the profound nervous disturbance upon which the symptoms of suprarenal melasma depend. A like result not improbably follows the degeneration of the thyroid gland in myxoedema, or as a result of injury to the nerves in connection with the gland caused by its ablation.

It is remarkable, in reference to this point, the frequency with which tetany follows surgical removal of the thyroid body—viz., in 10 out of 68 cases operated on by Billroth, and in 3 out of 10 recorded by Reverdin. The nervous symptoms in the disease, and especially the mental state of the patients—a condition described by Reverdin as one in which the works of the machinery seem perfect, but the wheels are clogged with oil—indicate a widespread disorder of the central and peripheral nervous system.

SENILE CHOREA.

The notes taken of this case are briefly as follows. For many of the particulars I am indebted to Mr. Richard Smyth, my very zealous clinical clerk:—

Thomas M., ex-Constable, R.I.C., aged fifty-six, admitted into hospital on the 6th of Feb. last. He was dismissed from the Constabulary after a service of seventeen years for some irregularity in respect of a shilling, for which he could give no satisfactory explanation. This, and his inability to obtain employment, weighed heavily upon his mind, and he became depressed in spirits and irritable in temper. He had been through life a strong vigorous man, never suffered from rheumatism, and he gives no history of any nervous disease existing in his family.

Four years ago he complained, whilst working as a farm labourer, of weakness in his legs. This continued with some signs of abatement until two and a half years ago, when his wife died, and this event appears to have preyed upon him. Violent and irregular movements set in at first in the legs, and subsequently, after a lapse of about six months, in the arms. When the movements had been established some time in the arms, those in the legs gradually became less marked.

A month before admission he suffered much from insomnia, associated with a constant wriggling movement of the body whilst in bed.

The condition of the patient at present is as follows:—Choreiform movements of arms, head, and trunk, intensified upon emotion, excite-

ment, or when the patient speaks. Characteristic mode of protruding and withdrawing tongue; occasionally a quick jerky method of speech. The gait is peculiar; when about to walk he stops for a moment, makes a sudden bend forward with his body as if he were going to fall forwards, sways violently from side to side, and then moves on. There appears to be some general muscular weakness, but no local paresis. The dynamometer registers a pressure with each hand of 47 lbs.; there is no evidence of anæsthesia.

The patient is greatly emaciated, looks haggard and cachectic, and appears mentally to be somewhat weak-minded. He has a harsh, dry, and non-perspiring skin; the urine is free from albumen and sugar. The sounds of the heart are fairly pronounced and free from murmur.

The case is interesting in the age at which chorea was developed, its causal relation with worry and mental distress, in its being ushered in by weakness in the legs—in which the choreiform movements first showed themselves—and for its extreme chronicity. The disease is so typically one of chorea that it is unnecessary to discuss conditions which might be confounded with it, such as disseminated sclerosis and myoclonus multiplex.

The only point to which I would direct attention is the probable pathological lesion which exists in chorea. No one will refuse to admit the interest which is centred in the inquiry as to what is the pathological physiology of chorea—an inquiry rendered all the more complex, considering the various and inharmonious details recorded in reference to its morbid anatomy. I do not propose here entering into a discussion regarding the different views as to the spinal or cerebral origin of chorea, or the various experimental observations which have been recorded as to the mechanism of its production, but I shall shortly state the reasons why I consider that the hypothesis which refers chorea to a disturbance in the action of the cells in the motor area of the cortex, is the one which is most in harmony with the origin, nature, and course of the disease.

It will be conceded, however doubtful may be the localisation of the site of the lesion in chorea, that its effects are manifestly those of functional disturbance in the action of the motor nerves.

The ordinary form of the disease is a motor neurosis, which has the following distinguishing features:—It is most frequently developed suddenly in children of good health as a result of emotional disturbances such as fright, or the depressing influences of dread or anxiety; it arises not uncommonly from imitation, or from what is called the *contagiousness* of chorea; it is usually of a

transient nature, ending in perfect recovery, and its progress is frequently terminated by the occurrence, during its existence, of some intercurrent disease attended with feverish disturbance. We have next to note the marked predominance of the disease in the earlier stages of life, from the period of the second dentition to the close of puberty, and its special tendency to attack girls. That is, at the period of life when the most active development is taking place as regards the motor function, but when the different lines of resistance to nervous discharge are in a condition of evolution, and the nerve-cells themselves are highly impressionable and unstable, the condition of irregular spasm is set up. It occurs more frequently in girls from their greater liability to the effects of psychical disturbance. Is it not more likely, from *à priori* considerations, that the origin of this motor neurosis is to be traced to a primary disturbance of the highest motor centres than that the point of departure should be sought for in a lesion of intermediate structures like the basal ganglia, or localised areas in the spinal cord? No doubt marked lesions have been recognised in the corona radiata, corpora striata and optici thalami on the one hand, and in the spinal cord on the other, apparently supporting the views of Charcot, Tuckwell, Broadbent, Hughlings Jackson, and Bastian as to the cerebral nature of chorea, and those of Chauveau, Paul Bert, and Onimus as to its spinal origin. But we may fairly ask if the morbid anatomy in the brain and peripheral nervous system, which has been described, is anything more than secondary results occurring in rare and grave cases of the disease as a consequence of a persistent irritative lesion, involving the highest motor nervous mechanism. No doubt the effects upon muscular movements would be the same whether the source of irritation was situated in the corona radiata, in the neighbourhood of the internal capsule, or in the motor area of the cortex, but in favour of the last localisation the following points may be urged:—

(a.) The occurrence of an irregular distribution of motor and sensory paresis in chorea.

(b.) The greater implication of the upper than of the lower extremities in the choreiform movements—that is, of the limbs most closely related to volition.

(c.) The frequent connection of chorea with mental weakness, and the fact that it is attended at times with acute mental disturbance, so as to constitute a special type of the disease under the name of maniacal chorea. Senile chorea is said by Charcot to be

usually associated with dementia, and other observers have recorded cases which were indistinguishable mentally from dementia paralytica. One seldom fails to notice a look involving a certain amount of fatuity in most cases of chorea.

(d.) Chorea is closely related to hysteria, and the two affections are united in the form recognised as hysterical chorea. Anyone who is familiar with Charcot's description of rhythmic chorea must recognise how largely the hysterical element enters into the genesis of the motor disturbances. This is all the more important to recognise, considering the relation which hysteria has to alteration in the function of the nerve-cells of the cerebral cortex. I believe in time a very close relation will be established as regards the mode of production of motor disturbances in chorea, hysteria, and epilepsy, inasmuch as all three most probably depend upon disturbances—it may be nutritive in character—in the highest part of the nervous organism.

(e.) The occurrence of reflex chorea, such as that met with in pregnancy, is capable, I believe, of a more intelligible explanation by referring it to disease in the cortex than to the lower nervous centres.

(f.) Lastly, the occurrence of habit chorea, which is a condition most markedly under the influence of the will.

With regard to the nature of the lesion affecting the cerebral cortex, it is difficult to give a satisfactory opinion. One might be disposed to theorise and urge that the occurrence of some sudden disturbance of the circulation, probably brought about by the violent action of a psychical emotion upon the vaso-motor centre in the medulla, affected the circulation through the second and third branches of the middle cerebral arteries. We should not, however, be unmindful of Virchow's teaching, that we are not to look to the vessels for the initiation of disease in the textures of the body, that the life of the texture is in the texture itself, and that the demand for increased or diminished supply of blood made to each texture, and the movement in the blood consequent thereon, is secondary to the demand made by the texture elements themselves. Upon this view we must look to the initiation in chorea being taken by the nerve-cells themselves, and that any changes affecting their nutrition is induced secondarily by alteration in the demand which they make for an increased or diminished blood-supply.

DIVER'S PARALYSIS.

This case, kindly sent to me by Dr. Myles, is one of which I am only able to give incomplete details. I had an opportunity of examining the patient but once in hospital, as, to my disappointment, he left after a sojourn of two days. He was a tall, powerfully developed man, with a tendency to corpulency, and aged thirty-four years. After serving as a sailor for seven years he became a diver. About three months ago he was engaged as a diver at Trinidad, at the extraordinary depth of 143 feet below the surface. About twenty minutes after emerging from the water, he lost power over his legs, and they became numb and dead to all feeling. In a short time some power returned in them as well as sensibility, and he returned to Liverpool a month ago. From the period of the seizure he suffered repeatedly from attacks of vertigo, especially after exertion, the vertigo being preceded by a numb, cold feeling in the occiput, or a sensation as if he had his hat on. He has the same kind of feeling and a sense of tingling in the legs when he sits down on a chair.

When I saw him in hospital I found the condition such as would indicate chronic myelitis in the dorsal region of the cord, with signs of irritation or degeneration in the pyramidal tracts; motor paralysis, some anæsthesia and analgesia of the legs, especially the latter, and partial loss of faradic and galvanic excitability of the muscles. The plantar-reflexes normal, cremasteric absent, exaggeration of patellar and quadriceps reflexes on both sides, but no evidence of ankle clonus. The patient found it very difficult to walk or stand, and on attempting either the legs from the knees were widely separated, so as to simulate a condition of extreme knock-knee. His gait was of a waddling character, such as one sees in a more marked degree in pseudo-hypertrophic muscular paralysis. When standing, after making some exertion, a very marked clonus was spontaneously developed in the quadriceps extensors on both sides; the clonus distinctly affected the vasti as well as the recti muscles. The muscles of each calf were rigidly contracted, and the patient had to take long steps before he could bring the sole of his foot to the ground. When lying in bed both legs were kept in a condition of rigid extension, the feet being in the position of talipes equino-varus, and the toes extended upon the foot. The position noted was that usually seen in primary lateral sclerosis. The foot was so extended as to suggest a partial subluxation of the

astragalus, but the patient accounted for the extension of his feet by the fact that he had to use heavy leaden plates, which were strapped to his feet so as to keep him erect when descending through the water. He further remarked that a swaying kind of gait, such as he presented, with the feet wide apart, was quite common amongst divers from the constant use of these plates, which weigh 15 lbs. There was no pain complained of anywhere; some irritability of the bladder and an impaired power of retention existed, but not to any marked degree.

The case just imperfectly narrated is an instance of what is known as the caisson disease, produced in persons who, after being subjected to a very great degree of increased atmospheric pressure, are suddenly relieved from this pressure, as in the case of men working in submarine operations by the aid of compressed air. It is stated that no disease is produced except the pressure exceeds 15 lbs. to the square inch, but that its intensity varies directly with the pressure, which sometimes exceeds over 50 lbs. to the square inch, and also with the length of time the pressure has been exercised. Amongst the most common of the lesions produced by the use of the caisson is paraplegia of the lower extremities, and the peculiar features of the disease appear to be as follows:—

It is developed usually half an hour after the diver reaches the surface; it generally involves sensation, motion, the use of the sphincters of the bladder and rectum; its duration usually varies from twelve hours to some weeks (though in a certain proportion of cases the lesion becomes permanent), and the paralytic phenomena reach their maximum of development in the course of a few minutes.

Two views have been urged to account for the lesions observed in the brain and spinal cord in the caisson disease. François and Paul Bert hold that the symptoms are caused by the liberation in the vessels of gases which are absorbed under increased pressure, but set free when the pressure is removed. Paul Bert, in the *Comptes Rendus* for 1872-73, demonstrated the existence after death of bubbles of nitrogen in the vessels of the brain and spinal cord of animals subjected during life to a pressure of air exceeding five atmospheres, and he points out that when pressure is less than five atmospheres, and that three minutes are allowed for the restoration of the normal pressure, the formation of the globules of nitrogen is prevented.

The great objection to the theory of François and Paul Bert is

that, admitting the effect of the pressure of over five atmospheres, maintained for a period greater than three or four minutes, to be attended with the absorption of gases, and that these give rise to obstruction in the vessels, it is difficult to explain the immunity which most divers have from any but trivial disturbances—such, for instance, as tinnitus aurium, sensations of pins and needles, &c., although many work for an hour at a time at a depth of from 90 to 100 feet below the surface. The most rational explanation is that which refers the lesions to changes in the circulation resulting from the sudden removal from a condition of increased atmospheric pressure. The effect of the increased pressure on the surface of the body tends to drive the blood towards the internal structures; the equalisation of blood pressure sends an enormously increased supply to the vessels of the brain and spinal cord in such a degree that the distension of those vessels is so great that they are regarded as passive tubes, which are more or less removed from the normal influences which regulate blood supply. When the external pressure is suddenly decreased to the normal standard the blood is at once directed from the channels which have been over-distended. But as the vessels of the brain and spinal cord lie within osseous canals, the diminished pressure on the surface of the body affects them only indirectly. The blood pressure in the cerebral and spinal vessels is suddenly lowered at a time when the vaso-motor mechanism is out of gear, so that, although the vessels are full of blood, the circulation becomes slowed, and areas of stasis may be formed, which, affecting the nerve elements, give rise to symptoms of nervous disturbance—such as pain, paralysis, vertigo, &c.

Why the paralysis is generally confined to the lower limbs is a matter of considerable interest, and I do not think the explanation of it offered by Gowers a satisfactory one. He regards it as due to an acute revulsive anæmia, such as may be developed after severe hæmorrhages; but this does not fully account for the paralysis being a lumbar or dorsal paraplegia.

One would be disposed to regard the symptoms as due to a hæmorrhage into the cord; but in two *post-mortem* examinations made in paraplegia developed in divers, recorded by Leyden and Schultz, no traces of hæmorrhage were found, the cords showing merely evidence, slight in character, of disseminated sclerosis, principally existing in the dorsal region. I am inclined to regard the explanation offered by Moxon as the true one. He points out that the blood supply to the cord is carried on by three long slender vessels

coming from the vertebral arteries, and that these are reinforced by small branches which pass to the cord along the nerve roots. These branches are for the most part short, nearly transverse in direction in the cervical and dorsal regions, oblique in the lumbar and sacral regions. Furthermore, it is to be noted that the spinal cord does not pass beyond the lower body of the first lumbar vertebra, whilst the spinal canal enclosing the leash of nerves, which form the cauda equina, extends to the end of the sacrum. Along the obliquely directed sacral nerves pass upwards those delicate branches of the lower lumbar and sacral arteries which reinforce the terminal portion of the spinal arteries proper. The lumbar enlargement of the cord receives therefrom its supply of blood under conditions of blood pressure, which a slight weakening of the *vis à tergo* must reduce to a minimum. This is shown by the fact, that the anterior spinal artery is rarely found injected to its termination, usually, I believe, to only within a couple of inches of the *filum terminale*, whilst the vessel is always found empty on the *filum* itself.

Professor Birmingham, who kindly made an investigation into the arterial supply of the lower part of the cord for me, mentions a very curious point in reference to the length of the reinforcing sacral arteries. That corresponding to the third or fourth sacral nerve was eight inches in length, of very small calibre, and injected only at its lower part from the lateral sacral for a very short distance, whilst the part in immediate connection with the anterior spinal artery was also injected, but the intervening part of the vessel was found empty.

Thus it is seen that the end of the spinal cord, corresponding to the innervation of the lower limbs and the sphincters, receive a supply of blood under conditions which circumstances may render precarious, for any sudden diminution of blood pressure may lead to such a reduction of blood supply as to produce profound functional disturbance. This may be aggravated by any sudden increase in the passage of the cerebro-spinal fluid within the *theca spinalis*. What probably helps to avert disturbances of nutrition depending upon defective blood supply in this situation, is the greater number of reinforcing arteries at the lower segment of the cord than elsewhere. I believe then the peculiarities of the circulation just described account for the paraplegia developed in divers, being usually of a transient nature. It is true the case which I have brought before the Academy represents a dorsal form of paraplegia, and not a lumbar one. But I consider that in this case,

and in others recorded of a similar chronic nature, the sudden disturbance in the circulation led to such nutritive changes in the cord that a myelitis was set up in that part of it which is, *par excellence*, the seat of inflammatory change—viz., the dorsal segment.

ART. XXI.—*Tubercular Tumour of the Pons.*^a By J. MAGEE FINNY, M.D., Dubl.; F.K.Q.C.P.I.; King's Professor of Practice of Medicine; Clinical Physician to Sir Patrick Dun's Hospital; President of the Section of Pathology in the Royal Academy of Medicine in Ireland.

AT the present time considerable attention is being paid to the subject of cerebral pathology, and every instance of disease which can either confirm former observations or elucidate some vexed question dealing with this subject, possesses an interest wider and greater than it could possibly attain to, if it were but an isolated pathological fact. It becomes at once another link in the strong chain of evidence upon which hang a scientific diagnosis of brain disease and a rational therapeutics. The case which I bring under the notice of the Academy is just such an instance, and it consists of a tumour which involves a very considerable portion of the pons.

It is not my intention to occupy your time by any lengthened detail of the clinical history of the case, but as perhaps its chief interest, or one of its chief interests, lies in the direct focal symptoms produced by the new growth as it implicated the various nuclei and nerve paths situated in the pons, I shall have to crave your indulgence if I point out the information we were able to derive from the perversion or loss of function of the parts affected by the tumour, and by means of which a diagnosis of its locality could be arrived at with some approach to scientific accuracy. Indeed, to present to the Academy the morbid specimen with the bald facts of its position and nature, would be to deprive it of its real anatomico-pathological bearing and importance, and to treat the intelligence of the Academy with scant courtesy.

CASE.^b—The patient (J. S.) aged thirty-five, a clerk by occupation, was admitted to Sir Patrick Dun's Hospital on August 27, 1888. His personal history was free from syphilitic or tubercular taint, or injury to the head. Nor was there any tuberculosis or cancer in his family history.

^a Read before the Section of Pathology in the Royal Academy of Medicine in Ireland, Friday, March 22, 1889.

^b From notes taken by Mr. L. Molloy, B.A., Clinical Clerk.

He states that his present illness began a week before admission by sick stomach, and in four days he noticed that the sight of the left eye became weak, and that he could not look to the left without turning his head round. At the same time internal strabismus of the left eye was established. On the following day he noticed a numbness in his right hand and then in the foot of the same side. He also could not walk without staggering, and suffered from vertigo. On inquiry of his employer it appeared that the patient was not quite himself for a fortnight or three weeks previously; that his memory had become unreliable; and the power of his right arm was noticed to be weaker.

State on Admission.—The patient was unable to walk without staggering, and the right leg was weaker than the left. There was comparative want of power in the grasp of the right hand, and in the flexor and extensor muscles of the arm and forearm. He was also unable to bring the finger of the right hand accurately into contact with various parts of his body when unguided by sight. The reflexes, superficial and deep, were normal, and there was no ankle clonus. There was partial facial paralysis on the *left* side, as the labial fold on that side was not so marked as on the right and the left corner of the mouth was a little lower than the right. Frowning and elevation of the brows could be executed much more imperfectly on the left than on the right side. The left palpebral fissure was larger than the right, and the eyelids could not be accurately closed on volition, although they are so during sleep. The tongue was protruded straight, and speech was apparently natural, although occasionally some word or syllable was slurred, though how far this was due to habit or peculiarity could not be at first ascertained.

There was marked internal strabismus on the left side, and the eye could not be brought past the middle line in attempting to look to the left. The eyes were also constantly turned to the right, and the head generally inclined to the same side.

Dr. Maxwell kindly examined the eyes on Sept. 2nd, with the following report:—"The right eye can be turned in on convergence, but not in looking to the left. Diplopia only present when the right internal rectus and the left external rectus are called into play. There is no nystagmus. Examined ophthalmoscopically, the right fundus is normal; in the left the top of the disc is slightly hazy, and the veins are a trifle too large in proportion to the arteries. There is an absence of atrophy and hæmorrhages."

The chief complaints of the patient are as to his eyes being crooked, the existence of a numb feeling in the fingers of his right hand, and the inability to walk steadily. The bowels were very constipated, and resisted very strong purgatives. The stomach was occasionally sick, without pain or nausea.

Though no complaint was made it was evident that the patient had no power, or very little, over the bladder, and he seemed to have no desire

to empty it. Catheterism was, therefore, necessary twice a day for a full month after admission, when, curiously, without improvement in other respects, the bladder regained its tone, and the patient was able to pass his water without instrumental aid.

The urine was frequently examined, both on admission and subsequently, and was found free from albumen, sugar, and indigo. Its sp. gr. was 1018; chlorides were present in fair quantity. Its re-action was generally faintly acid, and sometimes neutral, or alkaline, but it was never ammoniacal or phosphatic, nor were pathological renal derivatives at any time present.

A fortnight after admission paroxysmal headache, situated in the forehead and left temple, was complained of, as well as paræsthesia of the right side of the face, nose, lips, and tongue. These parts felt numb, swollen, and subsequently icy cold, their coldness being described by the patient as "terrible;" and some short time subsequently there was complete anæsthesia of this side of the face. Speech was more indistinct and thick in utterance, and the saliva dribbled from the corner of his mouth. Profuse perspiration, which broke out on the least exertion, such as taking a drink, and mucous exudation and accumulation occurring in the bronchi, which was not removed by coughing, showed advancing disease in the pons.

These symptoms were associated with increasing muscular weakness, more especially on the right side, so that beside not being able to sit up of himself, or to maintain the sitting posture without support, the patient became unable to feed himself with his right hand, or to hold a cup between his fingers. Passing attacks of semi-coma lasting several hours now ensued, yet out of these he not infrequently completely rallied, and for a short time seemed a little less ill and heavy than before their occurrence.

On Sept. 26 Dr. Maxwell very kindly made a second examination of the patient's eyes. He found intense optic neuritis in each eye; the surface of the disc was not much raised, but the veins were very large and tortuous.

This change had practically occurred in little more than a fortnight; for on Sept. 2nd the right disc was apparently free of disease, and very slight alteration from normal could be detected in the left.

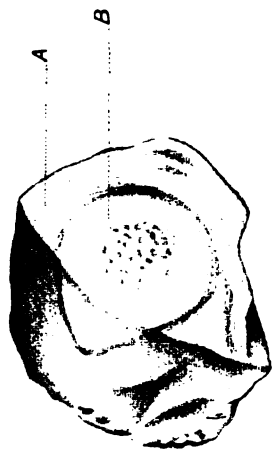
At this time the power of convergence of the eyes was lost, and the right eye could be turned most imperfectly and slowly to the left side, as far, and only as far, as the middle line, the movement being slow and deliberate, whereas to the right side—that to which the eyes constantly inclined—the movement was rapid and easy.

A short and temporary rise of temperature to 103° an hour after a severe rigor occurred on Sept. 27th, followed by hiccough and increasing heavy breathing and dulness of intellect.



LONGITUDINAL SECTION.

A	PONS	C	MEDULLA
B	TUBERCULAR TUMOUR	D	CEREBELLUM



TRANSVERSE SECTION.

DR FINNY ON TUBERCULAR TUMOUR OF THE PONS.

On Oct. 3rd the ocular muscles on both sides seemed paralysed, as the lateral movements of the eyes were almost completely annihilated; and on Oct. 11th the patient died by failure of the respiration. For a day before his death the inspiration was short and jerky, and the expiration prolonged and interrupted, and the corneal, plantar, and knee reflexes were abolished on the right side, though present on the left.

The *post mortem* examination, made the day following his death, and which was compulsorily confined to the examination of the skull, showed nothing wrong with the membranes or cerebrum, beyond a moderate increase of arachnoid fluid both outside and inside the brain. The size, prominence, and firmness to pressure with the fingers of the pons at once attracted attention, and it was readily apparent that it was the seat of some infiltration or tumour. On making a longitudinal section in the middle line this tumour, about the size of a small marble, was disclosed, and which is very accurately delineated as to size, position, and colour by my friend, Mr. Robert Lynn Heard on this drawing (exhibited). It was chiefly on the left side of the pons, and lay about midway between its upper and lower surfaces, and occupied about the inferior half of that organ, being accurately defined behind by the posterior limit of the pons, while its anterior and upper and lower borders insensibly blended with the nerve matter surrounding it. It occupied in a similar way the right side, but it formed but a third of the section on that side. A transverse section shows that it extended almost completely across the pons from side to side. Its colour when recent was pinkish red, and the adjoining brain matter, except near the medulla, was yellowish instead of white, as though it were in a state of fatty degeneration. It was surrounded by no marked capsule or limiting membrane, but by its pressure it appears to have completely displaced, or caused absorption of, a very considerable portion of the nerve tissue of the pons.

On examining microscopically a fresh scraping of the cut surface there were seen round cells, containing one or more nuclei, not unlike lymph cells, mixed up with a small quantity of connective tissue cells.

Dr. Purser has very kindly made a complete microscopical examination of the hardened specimen, and reported that it is an example of scrofulous tumour of the brain, remarkable alike for the extent of nervous tissue it has involved and the small amount of caseation it has undergone. The sections displayed a number of giant cells and the bacilli of tubercle.

The case is interesting, therefore, in presenting a solitary tubercular tumour of a large size in a man aged thirty-five, who had previously shown no evidence of tuberculosis.

This form of tumour—the most common of all cerebral tumours—may be either single or multiple, and when single is usually of a rounded form and is developed in the substance of the nerve-tissue. Next to the cerebellum, the pons is the most frequent seat. It is to be regretted that the restricted *post-mortem* examination precluded the possibility of verifying the existence of tubercular disease elsewhere in the body.

In summarising the above symptoms shortly after admission to hospital, the patient presented the following symptoms, which may to a large extent be taken as typical of tumour of the pons:—

(1) Incomplete paralysis of motion and sensation of the right arm and leg, with a loss of muscular sense.

(2) Paralysis of the left side of the face (alternate or crossed paralysis).

(3) Conjugated lateral deviation of the eyes to the right side, with paralysis of the left sixth nerve, and associated paralysis of the right third nerve supplying the internal rectus.

(4) Slight optic neuritis of the left eye.

(5) Unsteadiness of gait and weakness of the right leg, and a tendency to totter backwards.

(6) Paralysis of expulsive power in bladder and rectum.

(7) A fortnight later, bulbar paralysis, involving the tongue, lips, and pharynx was added, and with it a sensory paralysis of the right side of the face.

(8) And still later on, double optic neuritis of much intensity; paralysis of respiration; convulsions and coma.

Let us now consider in more detail the anatomico-pathological facts which explain the above symptoms. They are full of interest. The pathological interference commenced by the tumour involving the motor tract of the left side of the brain as it passed down from the cortical surface and the internal capsule through the pons; as the earliest symptom was a feebleness and paresis of the right arm and hand. Very soon after the leg fibres, which in their position in the pons lie external to those connected with the motion of the arm were invaded, and the power of using the right leg was impaired.

So far, the case might have been readily taken for an ordinary

one of partial or incomplete right-sided hemiplegia, and due to any focal lesion involving the upper portions of the ascending frontal and parietal convolutions, the cortical motor region, or the middle part of the internal capsule. But such a diagnosis was not tenable in the presence of facial paralysis and lagophthalmos of the side opposite to that of the paralysed arm and leg—that is, of the left side of the face. This fact—of lagophthalmos and crossed hemiplegia—at once directed attention to the pons as the seat of the pathological condition; and further, it accurately defined its situation to the lower part of the pons, for if the lesion had been in its upper part the lagophthalmos and hemiplegia would have been on the same or right side.

The ocular symptoms gave strongly confirmatory evidence in the same direction, for even before that the friends recognised the facial paralysis, that of the sixth nerve on the left side producing internal strabismus of the left eye, and diplopia on looking to the left were early and noticeable features. This combination of paralysis of the facial with the sixth, and at the same time hemiplegia of the opposite side of the body, is very characteristic of lesion in the pons, and could hardly be produced by any single lesion other than one situated in the neighbourhood of the superior olivary body. This complexity of deranged function ceases to be a matter of surprise when the close and intimate relationship of the nuclei of these nerves is considered, and the curious way in which the root of the facial winds round the nucleus of the sixth.

The next important feature we have to deal with, and which by its co-existence with the foregoing, still further indicated the pons as the seat of disease, was the conjugated lateral deviation of the eyes to the right side. This remarkable phenomenon is one of the most common derangements of associated ocular movements which is met with in cerebral pathology. It is present in various cortical lesions—alike irritative and destructive—in the coma of apoplexy, the slightest as well as the gravest of intra-ventricular hæmorrhages, in lesion of the internal capsule, and in lesion of the pons. Its significance will therefore largely depend upon—(a) its persistent or evanescent character; (b) whether it be due to spasm or to paralysis; and (c) whether the eyes deviate to, or away from the side of the cerebral lesion.

In my case the eyes were constantly and permanently deviated to the right side—that is, to the side of the hemiplegia. Now in cortical lesions, or those of the internal capsule, the eyes are turned

towards the side of the lesion, but in a paralysing lesion of the pons they are turned in the opposite direction. This, therefore, was a further indication of the seat of the lesion being in the pons, and of the left side of that organ being the part chiefly engaged.

A point of instructive interest, in connection with lesions of the pons, has been indicated by Gowers, and which was also graphically illustrated by my case. It is as follows:—"If the disease be above the nucleus of the sixth nerve—*i.e.*, at, or in the neighbourhood of, the superior olivary body—the eyes cannot be moved towards the side of the lesion beyond the middle line; but in some cases, although the associated movement is lost, yet convergence can be effected. But if the very nucleus of the sixth nerve be involved, there is complete loss of power of the external rectus, so that the eye deviates inwards, and cannot be rolled outwards, while the other eye can be moved by its internal rectus as far as the middle line, and no farther."^a

The only other direct symptom of lesion of the pons to which I need shortly refer, is the involvement of the sensory fibres of the fifth nerve. This was strictly limited to the right side of the cheek, nose, lips, and tongue, and was not to be confounded with the more general symptoms of glosso-labio-laryngeal disease presented in the latter weeks of the patient's life. If, however, we consider the very extensive course and origin of the sensory root of the fifth, we would be rather surprised than otherwise if it were not involved by such a tumour as we have presented in this case. It is to be noted, however, that this hemi-anæsthesia occurred on the side opposite to that of the facial paralysis, and would indicate that the fibres of the fifth involved, similarly to those of the spinal nerves, had already decussated from the right to the left side.

The last symptom I will refer to is that of the double optic neuritis. This, by itself, is perhaps the least significant of focal disease of the pons; for its frequency in intra-cranial disease, and the varieties of its extra-cranial causes, deprive it largely of its diagnostic importance. But in my case its rapid and extensive formation, taken in conjunction with the other localising features to which I have given full prominence, helped not a little in coming to the diagnosis that the lesion was that of a growth in the pons causing pressure rather than one of degeneration due to arterial obstruction.

^a Swanzy. *Bowman Lecture*. 1888. P. 7.

ART. XXII.—*A Case of Laparotomy in Ectopic Gestation.** By WILLIAM THORNLEY STOKER, Surgeon to the Richmond Hospital and to Swift's Hospital for Lunatics; Fellow, Examiner, and Professor of Anatomy in the Royal College of Surgeons, Ireland.

ON the night of Saturday, January 19th, 1889, a married woman, named A. B., aged twenty-four years, was admitted into the Richmond Hospital as a case of intestinal obstruction, but as I had no professional account of her illness, I was dependent on the patient and her friends for her surgical history, which added to the difficulties of diagnosis. Her previous history, as far as it could be elicited, was as follows:—She had been married for four years, and six and a half months after marriage had given birth to a dead child. She did not again conceive until the pregnancy which caused her death, but she constantly suffered from pain in the left inguinal region, for which she sought relief at several Dublin hospitals. She menstruated regularly, if painfully, until November, 1888, missing the catamenial period in that month and in December. She thought, therefore, she was pregnant, but menstruated again on January 5th—the discharge being, as is now evident, one of these imperfect menstruations seen in ectopic cases. On December 24 she was attacked by acute pain in the left inguinal region, for which she sought medical relief.

On Saturday, January 12th, whilst walking in the street, she was again seized by this pain, but of even a more acute character. She appears to have become partially collapsed, for she had to remain three hours in a neighbour's house where she took refuge; she then returned home, and was placed under medical treatment. During the week which intervened between the 12th and 17th of January she continued to suffer the most acute pain, was without sleep, vomited every time she took food, and had no action of her bowels. Her treatment, I believe, consisted of a daily succession of purgatives and enemata.

When she came under my observation she was in a most exhausted and distressing condition—crying aloud from acute abdominal pain, having an anxious worn-out expression, a rapid pulse of poor quality, and a temperature of 98°. Her skin was

* Read before the Section of Obstetrics in the Royal Academy of Medicine in Ireland, Friday, March 8, 1889. [For the discussion on this paper see page 345.]

clammy, her tongue brown, and she vomited frequently, but not faecal matter. The abdomen was tumid and tympanitic, but not to an excessive degree; the regions of the ascending and descending colon were dull on percussion, and a small circumscribed swelling could be felt in the left inguinal region, immediately above Poupart's ligament. The rectum was empty, but collapsed from pressure; the uterus pushed down into the pelvis, and fixed; and a marked tumefaction could be felt in the recto-vaginal pouch.

The case was evidently both uncertain as to its diagnosis, and urgent in its condition. It demanded a laparotomy for the purpose of ascertaining its nature, and, if possible, procuring its relief. But, having regard to the length of time—over seven days—which had elapsed since the commencement of the attack, and to the fact that the woman, although much reduced, was not in a condition to suffer from an added delay of a few hours, during which she might be prepared for an operation by inducing some sleep, I decided to postpone the laparotomy until morning, so as to have the advantage of daylight. I was further induced to this delay because, although the bowels had not acted for a week, the case did not in its general aspect seem like one of primary obstruction. The history of previous menstrual trouble, of a sudden attack when in ordinary health, with the immediate and continuous severe pain and early depression, pointed away from the usual conditions found in simple intestinal stoppage. The absence, however, of any accurate history prevented a positive diagnosis being come to.

I attempted to pass a long tube; as usual, it did not enter for more than eight or nine inches, and the warm water which I introduced returned at once. Pending the adoption of operative measures, the patient was given half a grain of extract of belladonna and one grain of calomel every third hour. Stimulants were administered, and opium given in quantities sufficient to relieve pain.

During the night the woman slept a little; was comparatively free from pain, owing to the opium, but vomited frequently, the ejected matter becoming faecal in character.

In the morning her condition was such that my colleagues, Messrs. Thomson and Corley, agreed with me that laparotomy should be undertaken at once. She was, therefore, put under ether, the abdomen opened by a median incision, and the omentum found to be so firmly adherent to the anterior pelvic wall that it could not be detached by any allowable degree of force. I was

obliged to include nearly its entire width in a series of transverse ligatures, and to divide it above its lower connection. The peritoneum was then discovered, as had been anticipated, to be extensively inflamed, and its pelvic and lower abdominal sac to be the seat of an hæmatocele, and filled with quantities of black, fluid blood and masses of clots. The intestines in the corresponding parts of the cavity were densely matted together by adhesions, and in the upper regions of the abdomen were deeply congested.

Search discovered a tumour in the left broad ligament about the size of a small hen egg; it was evidently the seat of an ectopic gestation, and the source of the hæmorrhage. It was tubal and free from the ovary and uterus.

The great intestine was comparatively empty, the small intestine much distended, and the obstruction due to pressure by the clots on the small bowel, where it rises from the pelvis to enter the colon, and on the pelvic portion of the greater bowel itself.

The bladder was contracted and so bound down by adhesions that it was incapable of distension, and felt like the unimpregnated womb of a woman who had borne children.

The right ovary was healthy.

The tubal growth was included between two silk ligatures passed through the broad ligament, so as to include a V-shaped surface, and was then removed. The clots were cleared out of the peritoneum by manipulation and washing, and intestines, as far as possible, freed from adhesions. The cavity was then sponged out, a large drainage tube introduced, the abdominal wound closed, and dressings of sublimated wood-wool applied.

The operation was difficult and protracted, and the condition of the patient and the parts such that but little hope of her recovery was entertained. She remained comparatively free from pain, became gradually weaker, and died in about eight hours after the abdominal wound had been closed, worn out by previous sufferings, and the shock of the necessarily prolonged laparotomy.

The *sectio cadaveris* fully endorsed the description I have given of the parts as discovered during the operation. The oval mass, which was removed, had been situated in the broad ligament, and involved the portion of the left Fallopian tube near its fimbriated end, leaving over an inch of tube next the uterus free from any tumefaction. The ovary as well as the uterus was free from engagement, and the gestation, therefore, tubal in the most strict sense of the word. The parts after removal were submitted to

Professor Fraser, who has kindly furnished me with the following notes of their condition, which correspond to my own observations of them:—

“The tumour consists of a portion of the left Fallopian tube, the size of a hen’s egg, more or less ovoid in shape. At the two poles the openings of the tube (cut) could be easily recognised. On making an incision along what had been the free border of the tube, the contents of the dilated portion were laid bare. The walls of this portion were quite free from the contents, except at one portion of the circumference next the posterior surface of the broad ligament. The contents were found to be the placental portion of the embryo, distended with coagulated blood, attached to that part of the circumference of the dilated tube above noted. They were solid to the touch, and I could discover, on rough examination, no embryo or free membranes. On section, however, the naked eye characters of the placenta could be easily recognised, the sinuses being full of coagulated blood.

“The uterus was enlarged, the walls being much thickened and its cavity empty; the cervical canal, however, was closed by thick, stringy mucus. The left ovary on long section was healthy; Gräffian follicles and remains of old corpora lutea could be seen. That portion of the Fallopian tube attached to the uterus, although enlarged, was also apparently healthy. On the right side the ovary was found to be healthy, although it was imbedded in the posterior wall of a cyst about the size of a hen’s egg. The Fallopian tube could also be traced along the anterior wall of this cyst, then over its posterior surface to the ovary; its termination was marked by the presence of a small cyst with a long peduncle. The outer half of this tube was not normal in appearance. The large cyst, on being opened, had several secondary ones in its interior, and was probably parovarial in origin.”

The extravasation of blood was entirely intra-peritoneal, with the exception of the clots contained in the distended tube removed during operation. No other blood had passed between the folds of the broad ligament, or into any extra-peritoneal situation whatever.

The theory of the case is probably this:—The hæmorrhage into the tube took place when she suffered the first attack of acute pain on Christmas Eve. The bleeding into the peritoneum was subsequent and secondary to this, and began at the date of her second and fatal seizure on January 12th.

When the imperfect clinical history of this case is read with the

light of *post-mortem* evidence, its story is, in most respects, the usual one, but in a few particulars peculiar or uncommon.

It is usual, in its incidents of a pregnancy followed by a long period of sterility; and of its history of disordered menstruation and pain—probably tubal in origin, and due to some cause such as desquamative salpingitis. It is usual as to the period at which the fatal hæmorrhage took place, for as she had her last normal menstruation about October 5th, and her fatal attack of bleeding on January 12th, her gestation was probably advanced at the latter date to about its twelfth week, and was certainly under its fourteenth. Again, the ordinary rule in these cases is the appearance of an irregular menstruation when one or more periods have been skipped. The detection of a tumour in the inguinal region, due to the hæmatocele in the broad ligament, is another matter of previous observation, and one which has before now helped to a diagnosis. All these are points ordinarily lending themselves to the elucidation of this accident; and as regards the previous tubal trouble—which appears to have existed here—it is a condition so usual that it has generated and supported the theory that disease of the tube is responsible for the ectopic gestation, by offering a mechanical obstruction to the passage of the ovum. It is doubtful if a tubal pregnancy ever occurs save in a person who has suffered from salpingitis, or some condition capable of obstructing the ovum. This case is an example of the more common of the forms of ectopic gestation—tubal, as contrasted with interstitial. Of the so-called ovarian I forbear to speak, as its existence, although quite possible, is as yet not proved.

With these facts before us, it is evident that the case was one which, if it came under observation at the commencement of the hæmorrhage, might have been recognised and saved by the operation which, as it was, proved too late. The results which Mr. Lawson Tait has obtained in these cases is such as to force the question of operation on surgeons.

It is unfortunate that as yet we have no means of making more than a guess at the existence of an ectopic pregnancy until the accident of a hæmorrhage tells the story with sufficient emphasis. Once that has occurred the distinction has to be made between extra- and intra-peritoneal bleeding. If it be outside the peritoneal sac, the interference of the surgeon is less urgently demanded, and his procedure less definite. But if the bleeding be intra-peritoneal, laparotomy, with removal of the embryo and the parts containing

it, and a cleansing of the peritoneum, is the only logical course to follow. Mr. Tait has recorded 41 cases of intra-peritoneal hæmorrhage due to ruptured tubal gestation in which he has operated, with but two deaths, a result which, having regard to the awful fatality of this accident when the abdomen is not opened, speaks trumpet-tongued as to the propriety of active surgical treatment.

I have stated the usual opinion that, whilst delay may be made in dealing with an extra-peritoneal hæmatocele, immediate treatment is required where the blood is within the serous sac itself. Among other reasons for this difference is the condition of the extravasated blood. When it lies in extra-peritoneal tissues it has the ordinary tendency to coagulate; on the other hand, when within the peritoneum its unvarying inclination is to remain fluid or imperfectly coagulated, and thus to promote the hæmorrhagic tendency. This is probably due, not only to the nature of the surface with which it lies in contact, but also to the admixture with the fluid excreted from that surface. The case in point affords a good example of these conditions, for while the clots in the tubal sac were so well formed and laminated as to resemble the contents of an aneurysm, the blood in the peritoneum was partly fluid, none of it thoroughly coagulated, and all of it black and tarry in appearance.

In a few particulars this case is a somewhat exceptional one. Although both intra- and extra-peritoneal hæmorrhages are common as a result of ectopic gestation, Mr. Tait has been able in his interesting lectures to mention only two examples such as this, in which a primary extra-peritoneal bleeding was followed by a secondary one into the sac of the peritoneum itself. One of these is the case of Goupil, in 1855, and the other that of Duverney, in 1712. From a careful examination of the specimens in my case, I am of opinion that the secondary hæmorrhage was due not to a rupture of the primary sac, but to a penetration from the tube into the peritoneum of the radicles of the placenta. Existence and growth of the placenta was possible, even if the rest of the embryo had been devitalised by the first intra-tubal hæmorrhage. No point of rupture could be discovered on the peritoneal covering of the tube, or in the tube itself, but on the peritoneum covering the broad ligament attachment of the tube, and corresponding to the situation of the placenta, a small circular area, about 1 cm. in diameter, of a deep red colour and great vascularity, could be seen. From this

placental penetration I believe the secondary hæmorrhage to have come. There was no blood between the layers of the broad ligament, except those well-formed clots contained in the sac formed by the dilated Fallopian tube.

The second exceptional feature to which I would point is the contradiction offered to the statement of Mr. Lawson Tait, who, speaking of blocking of the rectum, caused by constriction due to blood travelling between the folds of the broad ligament, says of the rectal obstruction—"This is one of the signs of broad ligament hæmatocele which has not yet been noted by any writer with whose works I am acquainted, and it is of great importance. It does not—indeed it cannot—occur in intra-peritoneal effusion." That this statement requires modification is shown by the conditions existing here, where intestinal obstruction was present from the very beginning, and in which the bowel was stopped by a pressure purely intra-peritoneal.

I have felt myself justified in occupying the time of the Section with the details of this case, not only because it possesses one or two features of exceptional interest, but because the treatment of the accident in question by laparotomy is a comparatively new one, and one about which I hope most surgeons will be in full accord with Mr. Tait, who advocates it so brilliantly, and practises it so successfully. That most of its features are typical, and therefore ordinary, would be a reason for remaining silent if the literature of the condition was extensive, or its diagnosis and treatment well established. But where this is not so, the case has not only some value in itself, but its details may serve as a guide by calling attention to a terrible surgical emergency, the treatment of which has lain in abeyance too long.

ART. XXIII.—*Professional Reminiscences.* By ANDREW K. YOUNG, M.D., F.R.C.S.I., J.P.; President of the Irish Medical Association; Surgeon and Medical Superintendent of the Monaghan County Infirmary; Consulting Physician to the Monaghan and Cavan District Lunatic Asylum.

I HAVE been tempted to write the following pages in the hope of setting some matters plain to those who have not had the opportunity of witnessing what I saw and am now about to narrate; or who, like myself, have not had the good fortune to see any statement, paper, or essay of the cause whereby, in some instances, the

present professional practice is adopted, so different from that which preceded it for an unknown period. In doing this I feel that I may be only exhibiting my own ignorance of our professional literature as it is daily published. But it must be pleaded, in my behalf, that I have been for many years an absentee from the metropolis (rusticated, in fact), my visits thereto being few and far between, and that the time of the country practitioner is spent more on the roads—to the distance of from 50 to 80 miles a day—than in his study; and that the facility of consulting great libraries is altogether removed from us, our only diurnal information being picked up from the few professional periodicals we can obtain and the broad sheets of the day, a conversation with one of the acknowledged lights of our profession being a very rare occurrence indeed. Therefore, what I am now about to write of may seem to those well informed to the day, not only prosy, but impertinent. If possible I shall get through the task I have undertaken, when rising from a bed of long-continued and serious illness, whereon my mind was haunted by many troubles, amongst which those of a professional tendency claimed their full share; there was one I tried in vain to get rid of, as it had so frequently occupied my mind when walking among the realities of life, so I found it the more difficult to banish once I was fairly launched in the regions of fancy. Accordingly, when the realities of life once more re-established themselves, and phantoms of a light nature vanished, I determined, if I could, to note some of the events I was an eye-witness of, and which collectively may go to form an epoch in professional history. They are few, but interesting, and will not, probably, be less interesting as being the result of memory of one who has been a witness of the events he relates, viz.:—

The introduction of the Stethoscope to Dublin.

The establishment of Clinical Instruction in Dublin.

The first teaching of Pathology in Dublin.

The Mercurial, and Antimercurial Contest at the Meath Hospital, Dublin.

The Banishment of Blood-letting from Medical Practice, and probable causes thereof.

As I can speak of persons, characters, and of events of upwards of sixty years ago from the present time, and fix to near approximation circumstances which I feel are now fast fading from the memory of the present generation, some things may turn up which,

having been so long buried in oblivion, may now wear the appearance, at least, of novelty, and amuse, if not instruct, the juniors of the present time.

I hope I shall shun prolixity, and avoid wearying by anecdote, but when I have the reputation of an individual or of a period to rectify I trust I shall be excused if I seem anxious to do that justice to those who are passed away as we would wish to be observed towards ourselves by our successors.

It was my intention, in commencing this, to begin with the important movement of Dr. R. J. Graves to establish the clinical mode of education in Dublin, on his return from the Continent; but as the first thing he did on his return from foreign travel was to introduce the stethoscope to the profession, I shall begin with it.

THE INTRODUCTION OF THE STETHOSCOPE TO DUBLIN.

When I was doing duty as a "dresser" in the old Meath Hospital, then situated in the Coombe, in the year 1822, and when I had thought I had familiarised myself with the personal appearance of all the professional staff of the hospital, I was surprised one morning at seeing a lithe, dark-haired, eagle-eyed, and energetic-mannered gentleman come in. He was received with acclamations of joy and hearty welcome. On inquiry I was told this was Dr. Graves, one of the Physicians to the Hospital; the other Physician being Whitley Stokes, father of the late Dr. William, and grandfather of the present Sir William Stokes. Dr. William Stokes succeeded his father, Dr. Whitley Stokes, ex-F.T.C.D., on his resignation as Physician to the Meath Hospital, anno 1826.

As far as I learned from the conversation around me, which was carried on in loud tones and with much hilarity, it appeared that Dr. Graves had just returned from the Continent (Germany, I think), and teemed with information, professional and otherwise, the result of his foreign travel. The facility with which he answered the many questions put to him, and the amount of information he conveyed, so clearly and in such charming language, made a very strong impression on my mind as a youngster; and, as I observed him in after-life, each succeeding year increased my admiration of his learning, his assiduity, and the depth of his professional information. It was Dr. Graves who, about this time, or a little later, according to my observation and memory, was the first to introduce the stethoscope to the notice of the profession in

Dublin—at least, it was now first shown to us, by him, at the Meath Hospital. There was much surprise and no little incredulity, with a shade of opposition, shown by sneering, or, as we say now, by “chaffing,” on its first introduction. The juniors looked at it with amazement, as a thing to gain information by—it so put them in mind of the pop-gun of their schoolboy days; the seniors, with incredulity. But that which was advocated and taught by Drs. Robert James Graves and William Stokes was not to be easily put down; and when a cavity, or any other morbid change was diagnosticated, and mapped out on the living body, and such being so constantly verified by *post-mortem* examination, a great additional power to diagnosis of disease was at once acknowledged by the many. Thus the unsightly stethoscope made its way despite its ungainly appearance.

The first instrument of the kind I saw was a piece of timber (elm, I think), about the scantling of an ordinary modern beetle, three inches in diameter, from 12 to 14 inches long, having a hole drilled through it from top to bottom, no ear-piece, and no attempt at ornamentation.

It was amusing to watch the shakes of the head as this bludgeon passed from hand to hand amongst the pupils, and to listen to the comments made by them, whilst Dr. Graves was holding forth in its praise. Well—no matter now. It soon began to become more and more refined in shape, and as its uncouth and unphilosophical form vanished its popularity increased, but in a greater ratio than its beauty, until it became accepted as a necessary assistance to the practitioner of medicine. There is no need now to insist upon its proven utility in advancing the study of thoracic disease beyond anything during centuries before its appearance.

I look back with amusement and pleasure to this time of one of Graves' triumphs against a strong prejudice of the time.

It was in vain that laughable stories went round, as when a man ran out of his field and hastened along the road, roaring out to Dr. Marsh, who was riding rapidly, before breakfast, towards the city from the mountain direction—“Postman! Mr. Postman!! you will lose your horn if you don't take care. It is joggling out of your pocket.” The giggles of the students were hardly concealed from the seniors when one of the celebrities of the time, on the invitation of Dr. Graves or Stokes (I don't recollect which of them), bent his ear to the tube, and having crushed it for some time against the timber of the instrument, declared, on raising his

head, that "he heard the sounds as they were described to him quite plainly," when to us, standing around, the apertures of the ear and the stethoscope did not, within a full inch, coincide with each other.

THE ESTABLISHMENT OF CLINICAL INSTRUCTION IN DUBLIN.

The clinical mode of instruction, as introduced to Dublin by Dr. Graves, and taught there by him and Dr. William Stokes, has been long celebrated.

As its commencement has not (as far as I know) been notified by any, excepting some casual accounts, it may not be uninteresting to some, that a few lines should be written thereon, as witnessed by the writer.

Dr. Graves was very desirous that it, and its twin sister, the stethoscope, should make their appearance at the same time. They seemed to be so intimately connected that it was in vain to separate them. The changing phenomena of illness, being heretofore concealed to a great extent during life, were destined to be revealed by the stethoscope before death permitted an accurate examination confirming its truthful foretelling. He, accordingly, in his great wisdom, looked around him to find a professional gentleman, whose early training and ability would aid him in his great designs of establishing clinicism (if I may coin a word) and the stethoscope simultaneously. He soon made his selection, the individual being ready at his hand. His friend, Dr. William Stokes, having studied in Scotland some years ere he graduated as M.D. in Edinburgh, and whose early education was directed by his eminent father, was well informed in the practical use of the stethoscope, which was in use in the sister-isle some years previously. Accordingly, Graves set about ascertaining what chance there was of his being elected as successor to Dr. Whitley Stokes, in case he should resign his position as Physician to the County Dublin Infirmary. After some time, when the position became vacant, the election of Dr. William Stokes, as the successor of his father, gratified Dr. Graves very much, and he at once set about to establish that which his heart was bent upon, and proceeded to select his clinical clerks from the senior students of the hospital. Their duty was to take the cases of the patients committed to their charge—to note the symptoms, stethoscopic, as far as they could, and otherwise. The lessons in the use of the instrument they had been receiving from him for some time previously, enabled them to

discharge these duties pretty well. The history, diet, and treatment, were all accurately noted. The case was read out at the bedside of the patient in the morning before the assembled students. The physician then examined the patient, and if his views did not coincide with the written report, he stated it aloud, and mentioned where the difference lay, and explained how one sound through the stethoscope could be mistaken for another, &c. The physician and student then made a careful examination, and the former instructed the latter where he had misunderstood the signs. The diseased condition of the affected tissue was described, and the remedies to restore its healthy state, or relieve its present distress, decided upon, and the *rationale* of its action carefully explained. The dense circle of students was generally on the tiptoe of curiosity and anxiety, for the physician spoke with as much confidence at times as if the stethoscope was an optical instrument, and the ear converted into an organ of sight.

The anxiety of the students to familiarise themselves with the use of the stethoscope and comprehend its power of diagnosis, and make themselves master of its (to them) as yet unknown language, was marvellous; for, the *post-mortem* examinations frequently proving the accuracy of the stethoscopic diagnosis, the fame of the instrument spread so quickly amongst the pupils (the rising generation of practitioners), that their numbers very rapidly increased to study the use of this marvellous instrument where instruction was given, and where such great pains were taken by the physicians to teach those who showed anxiety to learn.

THE FIRST TEACHING OF PATHOLOGY IN DUBLIN.

I must here interrupt myself and claim for my kind master, instructor, and friend, Surgeon William Henry Porter, that as Doctor Graves was the first to introduce the stethoscope and clinique, so was he the first to *teach* pathology to us his articulated pupils, long before the above-mentioned improvements were spoken of. Mr. Porter had, for years, urged upon us the value and necessity of cultivating pathology wherever we had the opportunity, and never to neglect any opportunity of cultivating it, if we hoped to rise in our profession. And when Dr. Graves and I, unexpectedly and self-invited, dined with him one day, and the appointment of Dr. Wm. Stokes as Physician to the Meath was discussed between them, and decided upon, as far as they could, the other intentions of Dr. Graves were also dis-

cussed. And I remember well the decided tone my kind master adopted when speaking of the *greater* utility of instructing the students in *post-mortem* appearances rather than in the use of an instrument so few believed in as yet. To this the reply was, "This proposal leads directly up to that you have been teaching for some time." This was the first argument that brought my friend round. He at once apprehended that the value of such teaching would almost necessitate pathological investigation; for a time at least; and that the combination of their efforts would eventuate in a sounder and more elevated tone of education than had hitherto been adopted. Surgeon Porter, with his customary cool and calculating judgment, gave assent to the proposal, whilst Dr. Graves went into the matter with his constitutional energy.

It is well for science these eminent men knew and appreciated each other so well. There was no tinge of jealousy between them. Each was anxious to elevate the education of the profession, and each gave his hearty assistance to the other.

Thus, as Dr. Robert James Graves was the first to introduce the stethoscope and the clinique, so was William Henry Porter, one of the Surgeons to the Meath Hospital, the first to *teach* pathology in Dublin. I went to Mr. Porter's house, in Kildare-street, one day, to dine with him, uninvited, as I had been often requested. I waited to observe if he dined at home before announcing my intention. I was followed by Dr. Graves in a few minutes. Whilst conversing in the study, Dr. Graves announced that he had come to dine. I said I had come with the same view, but as our friend had announced his intention before I did, I would resign in his favour. Mrs. Porter was appealed to by the surgeon, and we were both made welcome.

It was in the evening, after that dinner, that Dr. Graves revealed his intended innovation; and the arguments, explanation, &c., occurred as the post-prandial entertainment. That was, as well as I can fix it, somewhere in the autumn of 1825.

As to the claim of Dr. Graves being an energetic pathologist, no one can speak of his assiduity therein more decidedly than myself. I was confided in, as his apprentice, by Mr. Porter, and looked on as a trustworthy student by the other. At his (Dr. Graves') request, I have many a time remained in hospital after morning lecture to make *post-mortem* examinations of some bodies which had been living the night before, but died of fever a few hours previous to my taking upon me the task, at his desire. There

were few of us who liked to be inhaling the emanations from a body recently dead from fever, or other such ailments, on empty stomachs, and often I have been busy for hours, until the afternoon, and alone, when he would return to the dead room, where I had been making careful dissections of the diseased parts. He would scrutinise these carefully, and make his remarks aloud for my instruction, and finally address me to this effect:—"Young, this is the true way to study pathology. Here we see the changes which caused the symptoms we watched at the bedside with so much anxiety, and which are still fresh in our memory; and we can mentally follow each in its progress, until death resulted. This is infinitely more instructive than what we occasionally see in the dissecting-room. There we know nothing of the patient, his calling, or his disease. The body has been dead (buried possibly) for some days, and of his symptoms or sufferings we are in total ignorance; whereas here we know all we require of the poor fellow. We see the causes of death, fresh as they occurred, and we are not mystified in our research by putrescence of the parts, and we can attach to each change of structure we see here, with no great inaccuracy, each symptom presented to us during life, &c., &c. Now run home and take your breakfast."

On my return from such, or in some short time afterwards, I would relate what I had seen and heard to Mr. Porter, who would listen to me with interest, and instruct my crude mind how to connect the symptoms which appeared during life with each of the appearances revealed by examination of the body after death. All this I was prepared for by his former teaching on surgical pathology, for upwards of a year previously.

THE MERCURIAL AND ANTIMERCURIAL CONTEST AT THE MEATH HOSPITAL, DUBLIN.

In the early days of the new Meath Hospital the great mercurial and antimercurial contest was carried on over the world almost. Of course the question was canvassed very energetically at the Meath; leaders on each side at once sprung up in the persons of Dr. Graves and Surgeon Thomas Hewson, both on the medical staff of the institution. Dr. Graves entered the contest with his usual energy, and took the part of those he pitied, who were not only suffering from a loathsome disease, but also were likely to have more troubles put upon them by the infliction of a course of mercury, which, he insisted, produced more vexations by breaking down the constitu-

tion than the disease itself; whilst Surgeon Hewson insisted, on his part, that it was little short of homicide not to put a man carefully and safely through a decided course of salivation by mercury, by which the man would be rendered perfectly secure from all the constitutional affections which, sooner or later, were sure to follow the other system. He would make "*a decided mercurial impression on the constitution*" (these are his words). This "*impression*" consisted in *inunctions* of mercury, under confinement, until some basins full of saliva were produced, and the sores healed. These impressions were commented upon by his opponent, and held up as sad examples, leading to the destruction of human life. That mercury was occasionally injurious by its abuse rather than its use, I have had frequent opportunities of seeing. It became widely known that venereal was curable by mercury; accordingly a class of men, who are to be found in every populous district, used to *cure* venereal by their own ways. One of the prescriptions of the time, amongst the quacks, was, "Take as much calomel as will lie on a five-penny bit, and put it into a half-pint of whiskey to *dissolve*. When this is done, take an iron spoonful of the whiskey three or four times a day, until you are well. Or as much corrosive sublimate [*'Crozier's supplement,'* called by them] as will cover half the blade of a pen-knife [the size of the blade was not told], and use in the same way." It was surprising the mercurial examples to be met with at these times, in our streets, and the poor broken-down creatures seeking relief at our hospitals. By Dr. Graves such examples were set down to the use of mercury, by Mr. Hewson to the attempted cure by sarsaparilla, &c., and he had no doubt they were almost all of them syphilitic.

There was no use in trying to reconcile the belligerents. Each acted as his own conscience directed him, each believing his opinion to be correct, as that of the other was wrong; and each acted to confer benefit on his fellow-creatures. Although the struggle between them was so earnest, yet I never heard of one slighting expression on either side being made use of against the other. Each bore himself towards the other as a gentleman and a friend.

Some amusing episodes occasionally took place, as, when Mr. Hewson one day, having stripped a man naked, and exhibited him, spotted from head to foot with a brilliant copper-coloured eruption, turned round to the class and said, "Gentlemen, here you see another specimen of Doctor Graves' *cures*." This would elicit shouts of laughter from the students, but the vegetable supporters

could afford to smile at the jest, as their specimen of a sufferer was very infinitely better than he who, having been treated by mercury, saw occasionally the nurse bear away from his bedside, at the morning dressing, his genitals in a poultice.

So the battle raged, until both parties seemed to learn that nearly every syphilitic sore was curable by mercury; that every sore appearing on the genitals was not necessarily venereal; and that many ulcers do appear on those parts which are neither syphilitic nor curable by mercury.

It was not in those ancient days understood by many that when, under the influence of mercury, a true venereal (Hunterian) chancre began to yield to the metallic influence, its first process was to extend the surface to three, or even four, times its original size, become more shallow, to fill up, and put on a thin appearance at the edges, and to show a bluish tint there, before healing perfectly.

Amongst the vast number of the charlatans who made a trial to eke out an existence, these appearances of return to a healthy state were unknown. The patient, we will say, a married man, saw the change, and fearing he was about to lose his glans, as possibly some of his friends had, gets alarmed, and says to his medical adviser (?), "Why don't you heal this at once? You see the sore is getting much larger. Cure me at once." The attendant, hearing and seeing these, becomes much alarmed himself, and says, "Then I must give you more mercury." "Well, do so, but I am anxious to get home soon." Accordingly, without reference to the state of the surroundings, mercury is doubled, mercurial gripings and diarrhoea set in. The patient takes an extra tumbler or two of punch to drown care and conscience, the mercury is overdone, and it disagrees with the constitution. The sore in a few days, hours perhaps, puts on an unhealthy appearance, to the terror of patient and adviser. More mercury is poured in to prevent the destruction of the parts by venereal slough. No blame whatever was attached to the mercury, the venereal bore it all. At length, by this perseverance in what has now become the *abuse* of mercury, the event falls that has been so dreaded, and a mercurial slough forms, and the unfortunate loses probably more or less of his manhood's appearance.

I have no doubt that much evil has occurred by following the lines I have just sketched, for I have lived in times when such occurrences were not very uncommon.

(To be continued.)

ART. XXIV.—*Recent Advances in Abdominal Surgery.** By FRANCIS T. HEUSTON, M.D., F.R.C.S.I.; Surgeon to the Adelaide Hospital, Dublin; Lecturer on Anatomy in the Carmichael College of Medicine, Dublin; President of the Carmichael College Medical Science Association.

THE surgery of the abdomen is, I may say, essentially the surgery of recent days; for although Robert Houston, in 1701, recommended and practised surgical interference in the case of ovarian tumours, still so recently as thirty years since Dr. Isaac Brown was threatened with an indictment for murder if he persisted in performing operations on ovarian tumours—operations, I may state, which are now performed with a mortality of about 3 per cent. only.

In the case of ovariectomy, and in that of other operations which entail opening of the abdominal cavity, as time passes on and our methods of treatment improve, I hope and believe that the high mortality, which even to-day exists, will greatly diminish. I will, at a later period, show that such is the tendency, and that the peritoneal cavity is not to be approached with that fear which the older surgeons regarded it, but that we shall find it to possess the characteristic of being but very slightly prone to suppurative inflammatory action. To prove that this view is gaining ground, I refer to the following remarks of Mr. Lawson Tait in 1886:—"The delusion has been carried farther, for it was until very lately the fashion to put down every death after an abdominal operation to the influence of septic peritonitis. But what are the facts now? With an experience of abdominal sections which more than average one for every day in the year, I never, or very rarely, see peritonitis, either septic or otherwise; and as for septic influences, I never trouble myself about them." I may here mention that my experience, although necessarily a limited one, is entirely in accord with the statement above made, as I have never seen a case in which the opening of the peritoneal cavity has caused suppuration. In one of my cases indeed, owing to the depressed state of the constitution of the patient, the abdominal cavity lay open for nine days subsequent to operation, yet the patient eventually made a splendid recovery.

But it is not with reference to ovarian and uterine disorders

* This communication is the substance of the Presidential Address, delivered before the Inaugural Meeting of the Fourth Annual Session of the Carmichael College Medical Science Association.

I wish to speak. Those other conditions which require operative interference are the subject-matter of this address, and even a most casual examination of the journals for the past two years will show how numerous and varied are the conditions which are now considered to be within the surgeon's reach. In fact, no organ or viscus has escaped the knife. Before going into particulars, however, I must first point out that abdominal operations may be primarily divided into those which (1) require opening of the peritoneal cavity, and (2) those which do not require that cavity to be opened into, and in this latter class I am of the opinion should be included many operations which have heretofore been performed by the method of opening the cavity. This has been due chiefly to the want of a proper comprehension of the peritoneal relations of the viscera; as examples I would mention operations on perityphilitic abscess, and also on peri-nephritic abscess, in both of which, as a rule, evacuation of the pus can be obtained without exposing the patient to the danger of its extravasation into the abdominal cavity. This was practicable in two of my cases, the first being a peri-nephritic abscess, and the second a bilocular sero-sanguineous congenital cyst, situated behind the ascending colon.

As regards those cases which require the abdominal cavity to be opened, if given a chance of selection the incision should be made in the linea alba, for in the first place this does not necessitate any interference with the muscular fibres of the abdomen; secondly, this structure is but slightly vascular, and, the sensory and muscular nerves escaping injury, the danger to subsequent abdominal neuralgia and protrusions is lessened; while, thirdly, this allows of a more thorough examination of the abdomen than any other incision. Another and a fourth advantage is that here the peritoneum can be easily drawn forward, so as to oppose its serous surfaces to a considerable extent. I look on it as being of great importance that the peritoneum should be approximated by gut in such a manner as to bring its surfaces together about half an inch from the cut border—the more superficial sutures being then passed through this everted portion in order to draw it well into the wound, and thus a considerable amount of plastic effusion will occur, its subsequent organisation strengthening the cicatrix, and in this way lessening the tendency to hernial protrusion.

I shall now give a short *resumé* of some of the conditions which have required surgical interference within a recent date, with the method of operation to be recommended:—

1. *Penetrating Wounds of the Abdomen.*—These may be either stabs or bullet wounds; the former being frequently unaccompanied by visceral injury, do not require interference, unless there be evidence of internal hæmorrhage or organic injury, when the wound should be enlarged, and the injured viscera, solid or hollow, sutured. The peritoneal toilet should then be carefully attended to, all clots and foreign bodies being removed. As an example of this treatment being carried to a successful issue in this country, I will refer to Mr. C. B. Ball's case of chisel wound. In this case there was evidence of visceral injury and internal hæmorrhage, when the incision being enlarged, a penetrating wound of the stomach was discovered and sutured, and a large vein was ligatured, the patient making an uninterrupted recovery. Further information on this subject may be obtained by a perusal of eleven cases cited by Dr. Dennis, of New York.

The treatment of bullet wounds differs from the above in that here the surgeon should operate if the missile is shown to have penetrated the abdominal cavity, particularly if fired at close quarters. In this case visceral injury is nearly certain to have occurred, and even should this not be the case the clothing of the patient, or a portion of the wad, may have passed into the peritoneal cavity, and the foreign body, if allowed to remain there, will cause secondary inflammation. The method of treating such cases would appear to be to enlarge the bullet wound to such an extent as to allow of examination of the viscera in the immediate vicinity of the wound. Then, if visceral injury or extensive extravasation of blood has occurred, the usual incision in the linea alba should be resorted to, as it gives a much better chance of detecting injury and removing foreign material from the peritoneal cavity. For the result of treatment in such cases we must look to the American surgeons, who meet with a much greater experience than is possible in this country. Dr. Bull cites eight cases, in three of which the above treatment was resorted to with two recoveries, while all of the remaining five, not being operated on, died. Dr. Hiddeus mentions a case in which he removed a portion of the patient's vest, and an extensive clot, from the peritoneal cavity; this patient made a perfect recovery. Mr. A. Barker has operated on two such cases, one of which recovered.

We can now look on the great diminution of mortality in cases of intestinal injury as being due to two facts—viz., early operation and the improved method of suturing the intestine, by means of the

interrupted sutures—the different methods of applying which you are all familiar with—as having taken the place of the continuous suture, as formerly used. In civil practice the morbid condition of the intestinal tract which comes most usually under the notice of the surgeon is intestinal obstruction in its many forms, and here we have to deal with a condition which heretofore has shown a very serious rate of mortality. Among 274 cases of acute intestinal obstruction collected by Dr. Curtis, of New York, in which laparotomy was performed, a death-rate of 68·6 per cent. is recorded, but on examining into the cause of death we find 10 per cent. of the deaths were due to sepsis, 50 per cent. to the depressed condition of the patient, and 23 per cent. were owing to the length of time taken in the operation, and to subsequent shock. Thus we are enabled to fairly expect that this percentage will be lowered greatly by earlier operation and by the adoption of proper aseptic precautions at the time of operation. I cannot believe that the above amount of septic poisoning would occur if even moderate precautions were taken at the time of operation. That this opinion is well founded an examination of the isolated cases more recently published would tend to show, as the death-rate does not at all approach that mentioned by Dr. Curtis.

In a *résumé* of those conditions requiring removal of a portion of the intestine, Dr. Rächel collected 84 examples of primary operation, 44 of which were fatal; while of 37 secondary operations 21 recovered. The statistics given by Dr. Weir of 35 operations for the removal of malignant growths show that, prior to 1886, 16 recovered, but the method of operation performed in most of those cases differed very essentially from the more recently recorded operations, the result being greatly in favour of the latter. In Dublin I am aware of an operation coming under each of the above headings, the first being one by Mr. M'Ardle, who removed about 6½ inches of the ileum and the vermiform appendix for a perforating ulcer of the ileum, the patient recovering. Under the second heading two cases have been operated on by Mr. Franks, the first being fatal, but the second is worthy of record, for it was, I believe, the first case of recovery in the United Kingdom where a portion of the large intestine (transverse colon) was removed for malignant growth, the divided portions of the intestine being then sutured.

It will be seen from Mr. M'Ardle's case that perforating ulcers of the intestinal tract have come under the surgeon's hands, and

the same surgeon has performed, although not with success, an operation for perforating ulcer of the stomach, the fatal result being due to want of early operation, septic infection having commenced prior to the operation. Another example of ulceration has been treated, I regret to say, so far without success—I refer to the ulceration occurring in typhoid fever, all of four cases in which the operation was attempted terminating fatally.

The removal of solid tumours of the mesentery has proved to be very fatal, only two recoveries resulting after 16 operations.

Cysts of the mesentery are best treated by attaching the cyst to the abdominal wall and draining. Of this procedure I find 7 examples which did well, while attempts to remove the cyst have terminated fatally.

The liver has been frequently treated for perforating wounds with favourable result, as the hæmorrhage, which is the primary danger, has been readily controlled by suturing the organ, and the result in such cases clearly indicates that if rupture of the organ occurs without external wound (should the case be seen prior to very extensive hæmorrhage having occurred), an incision should be made and the wound sutured, as in the case of penetrating wound. Otis collected 26 cases of recovery from punctured and incised wounds of the liver where no operation was done, as also 60 cases of gunshot injury, which clearly shows that injuries to this organ are not as fatal as is usually believed, and that early operative interference is indicated.

Cholecystotomy has proved so successful that it is only necessary for me to state that Tait operated on 41 cases with only one death. The spleen has been removed successfully in 11 cases, out of a total of 35 operations, while drainage of abscess in this organ has been nearly invariably favourable in result.

Partial excision of the pancreas is indicated in circumscribed abscess and malignant tumours if situated at the splenic extremity of the gland. Billroth records two successful cases. Cysts and abscess of this gland have been very successfully treated by the establishment of pancreatic fistulæ.

The time at my disposal will not allow of my mentioning the many other operations which have been recently introduced in the case of the stomach, kidneys, and bladder*; but I cannot bring this very

* Dr. Samuel Gordon mentions that the operation of suturing a ruptured bladder, as recommended and practised by Sir William M'Cormac, was performed many years since by the late Dr. Charles Duigan, of Mullingar.

imperfect sketch to a close without referring to the great success which has attended abdominal section in the case of suppurative peritonitis and tubercular peritonitis; in the former Mr. Tait mentions 26 cases in which he operated, 22 recovering. This is worthy of record, for such cases have been considered by physicians as nearly invariably fatal. In the case of tubercular peritonitis drainage has been found to result in an abatement of symptoms which is very difficult to explain.

My object in writing this paper will have been attained if I have been able to impress on you that the peritoneal cavity is one which may be approached by the surgeon without serious result to the patient, and that in many cases operation holds out hope where palliative treatment gives none. Surgical interference is now imperative in many cases where lesions dangerous to the patient's life exist, and exploratory incisions are justifiable even for diagnostic purposes.

In conclusion, I would again draw your attention to my contention that abdominal sections are still fatal to an extent which should not be the case, and which will rapidly decrease as practitioners recognise their utility and as surgeons become more skilful and scientific in their operations and treatment. This opinion is, I consider, borne out by Mr. Tait's statistics, showing that in his operations the death-rate has fallen from 9·2 per cent. in his first thousand cases to 5·3 per cent. in the second thousand.

PRIMARY CANCER OF THE PANCREAS.

At a meeting of the Medical Society of London (March the 11th), Dr. Herrington read the notes of a case of primary cancer of the pancreas, occurring in a male patient, sixty-eight years of age. The man became reduced almost to a skeleton. Being an out-patient, the character of the stools is unknown. The *post-mortem* revealed a primary cancer of the head of the gland, blocking the bile duct and secondary deposits in one kidney and the spleen. The liver was unaffected. Creig Smith credits Billroth with the successful removal of the pancreas. On Hume's doctrine of probability this is hardly credible, even in the present day, when no viscus appears safe from the surgical knife.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A Text-Book of Pathology, Systematic and Practical. By D. J. HAMILTON, M.B., F.R.C.S.E., F.R.S.E.; Professor of Pathological Anatomy, University of Aberdeen. Copiously Illustrated. Vol. I. London: Macmillan & Co. 1889. Pp. 736.

PROFESSOR HAMILTON'S view of pathology is very comprehensive. As he writes in his preface, "The pathology of to-day is not delimitable merely as a matter of pure morbid anatomy, pathological histology, pathological physiology, pathological chemistry, or clinical medicine; but these are simply the members of a great body, and they are indissolubly bound together." Accordingly, as well as being a text-book of pure pathology, this work treats of pathological histology and of practical pathology, both naked eye and microscopic.

Part I. is practical. The first chapter contains an excellent account of the method of making a *post-mortem* examination. As well as the ordinary method of testing the aortic and pulmonary valves with water, Professor Hamilton proposes to test them with air, by making a small opening in the aorta or pulmonary artery, and, having inserted a tube connected with a bellows, pumping in air. He says the mitral and tricuspid valves may be tested in a similar way—viz., having tied the aorta and pulmonary artery, by making a small opening in the left or right ventricle, and inserting the bellows-tube. Considering on how many factors competence of the auriculo-ventricular valves depend, we do not think any reliable conclusion could be drawn from this test. The action of the valves, however, may, as Dr. Hamilton states, be very well demonstrated by this method.

Attention is very rightly drawn to the fact that the only satisfactory way to measure the orifices of the heart is by means of cones, whose circumference is graduated in fractions of an inch, or in millimetres. Considering how much one pathologist's fingers differ in size from those of another, the method of measuring, say the mitral opening by means of the finger tips, is absurd.

We cordially endorse Professor Hamilton's remarks about the absolute necessity, in all important nervous cases, of hardening the brain before making any examination of it. "It is only by hardening the organ before incising it that we shall ever make any progress in the accurate localisation of lesions." We are recommended to examine the brain by a series of perpendicular transverse sections. The pons, cerebellum, and medulla are first to be removed by an incision through the *crura cerebri*; then the cerebrum is placed on a board with the vertex downwards, and sections made right through it. Seven such transverse sections are said generally to be sufficient. A figure is given of each of these sections, showing the parts of the brain exposed. However useful this mode of dissecting a brain may be in particular instances, we do not think that it in general shows the brain at all as clearly as does Virchow's method—viz., the well-known series of horizontal sections, exposing the lateral ventricles in their full extent.

We next have some useful remarks about the examination of organs when removed from the body, and an outline form for taking notes of *post-mortem* examinations.

Chapter IV. contains extremely good directions about the preparation of naked-eye specimens for museum purposes. Professor Hamilton's beautiful sections through the entire brain are well known: he gives a very full description of the method of making these with his latest improvements. We next have several chapters on hardening tissues, on section cutting and microtomes, on the injection of blood-vessels, on staining solutions, on microscopes, and on practical bacteriology. This part of the work contains nothing particularly new, but is well written, and up to date, and is illustrated with a number of figures of apparatus necessary for bacteriological investigations. We must here mention one or two blemishes. Only five pages are devoted to the subject of the attenuation of pathogenic microbes. As this is, from a practical point of view, almost, if not quite, the most important, and certainly one of the most interesting subjects that can be treated of in a work on pathology, we think that Professor Hamilton might have devoted more space to its consideration. Again, the subject of immunity from contagious disease is skimmed over in one page. The author seems to expect that his readers will be content with the following statement, and it is all we can find about this part of the subject:—"Why it is that a single attack of syphilis, small-pox, anthrax, &c., so often confers immunity on the individual for

the remainder of a lifetime is as yet unexplained." It is true that this mystery is as yet unexplained; but surely in a text-book of pathology of the size and pretensions of the work before us, we have a right to expect some account of the various theories that have been put forward to account for this phenomenon. Many investigations have been made to elucidate these points, and many articles on them have been published within the last few years, all of which are passed over without a word of notice in this work. It may be that the second volume will supplement these deficiencies in the first. If so, it would have been better to postpone the notice of these subjects till the place for their full discussion in the second volume.

The second part treats of general pathological processes. It begins with the following definition of health:—"Health is that condition of structure and function of an organism which, on examination of a sufficient number of examples, we find to be commonest." The greater number of teeth are carious, and most of the people we know suffer from corns. We presume that Dr. Hamilton would consider the presence of caries and of corns to be an evidence of the health of the teeth and feet respectively.

We notice that amyloid disease is classed among the infiltrations rather than among the degenerations. The author rightly takes pains to explain that the liver-cells in amyloid disease of the liver do not degenerate and become changed into amyloid substance, but suffer merely from mechanical pressure. He, however, states in the next paragraph, in describing the relation of the blood-vessels to this substance, that "the muscular coat becomes thickened, translucent, and homogeneous; the fibres disappear from it." If this is not a degeneration of the wall of the artery, what is a degeneration? It might puzzle even Professor Hamilton to answer this question.

A very narrow definition of atrophy is given:—"Atrophy is the diminution in size, or absolute destruction of a part, which results from direct and continuous over-pressure where the blood-supply is not deficient." If we adopt this definition, we must greatly alter medical phraseology and the names of many diseases. For example, we would be precluded from calling that wasting of a muscle which results from a nervous lesion, or from the ankylosis of a joint, an atrophy; for in these cases there is no over-pressure. We think it is far better to give the term atrophy the wider meaning of retrogressive change with diminution in size.

In the description of gangrene no mention is made of dry gangrene, only the moist variety being noticed.

The chapter on inflammation is well worth reading. The author details at some length observations which he has made on suppurative keratitis, and states his reasons for believing that the pus-corpuscles are derived from two sources—namely, from the nucleated tissues of the part, and from the blood-vessels of the periphery; thus differing from the generally accepted view. The chapters on the healing of wounds and organisation are good. An ulcer is defined as “An open wound which, instead of healing, tends to remain stagnant, or to progressively invade neighbouring parts.” This definition seems to have been framed expressly to exclude that affection which is commonly called “a healthy ulcer”—i.e., one which tends to heal. If an ulcer when it begins to heal ceases to be an ulcer, we wish Professor Hamilton would enlighten us as to what it becomes.

Part III. treats of the diseases of the various tissues and organs. The chapters on tumours are fairly good. We are, however, surprised to find the question of their ætiology completely passed over; the omission of such a subject must greatly lessen the value of this work.

The next chapters are on the blood, and on the ætiology and pathology of several blood-diseases—anæmia, leucocythæmia, rheumatism, gout, &c. All this portion is very readable, but there does not appear to be much in it that is new.

The remaining chapters of this volume treat of the heart and circulatory system. We have an interesting account of the pathology of palpitation, and of the conditions of retarded beat of the heart, of irregular action, and of angina pectoris. The weights and measurements of the normal heart are next considered. With the graduated cones which we referred to above, the diameters of the orifices have been carefully measured, and as Dr. Hamilton has, for the last thirteen years, kept an accurate account of the size of the apertures, the thickness of the walls, the weight, &c., of nearly all the hearts that have passed through his hands as pathologist to the Edinburgh and Aberdeen Royal Infirmaries, his statements on these points must be held to carry great weight. The various diseases of the pericardium and myocardium are discussed. There is a good description of endocarditis, both simple and septic. The next sections contain the effects of endocarditis on the valves themselves, and on their action, malformations of valves, and

cardiac thrombi—which last Professor Hamilton seems to think are formed either at the moment of dying or else after death, except some septic thrombi. We have, on several occasions, in cases that were not of any septic nature, seen small, roundish, polypoid clots so fibrous in nature, and so firmly attached to the endocardium, that the view that they were formed some considerable time before death was irresistible. The effects of valvular disease on the different cavities and orifices is well described. In Chapter XLII. the pathology of cardiac and vascular murmurs is discussed. Professor Hamilton states the various views that have been advanced to account for some of these sounds (*e.g.*, anæmic murmurs), but does not more than hint at his own views on the subject. In many places in this work, after stating various opposed views and theories on some particular subject, we wish that he had summed up, as far as it was possible, the evidence for and against the different theories, and had given his own deductions and views.

The last chapters are on diseases of the blood-vessels. With regard to hæmorrhagic infarction of the lung, Dr. Hamilton completely rejects the ordinary view that it is due to an embolus. He says, "it is caused simply by one of the capillaries of the lung, in a state of chronic distension from the valvular disease, rupturing. The wedge shape is due, not to the distribution of the terminal branches of the pulmonary artery, but to the shape of the terminal bronchus and attached air-vesicles, in which the blood is confined."

There is a chapter on arterial pressure and on the pulse, illustrated with a number of sphygmographic tracings, and an appendix on the making of casts, models, &c.

One of the best features in the book is the bibliography. After each article there is a very good list of works and articles on the subject in question.

The figures with which the book is illustrated are generally poor; some of them are so roughly done as to be almost unintelligible. There are a few coloured plates, the chief merit of some of which is the brightness of the colours. The index, too, is far from complete—a serious defect in a book of reference like this.

On the whole, though there is a good deal to find fault with, there is a great deal to praise in this book. With the largeness of Professor Hamilton's definition of pathology, which we quoted at the beginning of this article, and the spirit of which is evident throughout his book, we have full sympathy. The style, too, is

very clear and readable. We recommend this book to the notice of all who are interested either in pathology or in scientific medicine. Even though they may not agree with all Professor Hamilton's views, they cannot but be struck by the clearness with which he states them, with the value of many of his practical hints, and with his industry in collecting the great mass of material which he has embodied in his "Text-Book of Pathology."

Transactions of the Royal Academy of Medicine in Ireland. Vol. VI. Edited by WILLIAM THOMSON, M.A., F.R.C.S., General Secretary; Surgeon to the Richmond Hospital, Dublin. Dublin: Fannin & Co. 1888.

FROM the brief Report of the Academy we learn that there is no falling off in the number of Fellows, also that her Majesty the Queen was graciously pleased to receive a jubilee address, and to "command that the Academy shall henceforth be known as the 'Royal Academy of Medicine in Ireland.'" These items are extremely gratifying. The Council "specially desire to see the list of student-associates increase," but their special desire, for some reason or other, does not seem to exercise much attractive force, inasmuch as the list contains *two* names only. The papers, the more important of which have appeared in our columns, do not call for much remark. We shall briefly indicate a few. Presidential addresses and discussions on papers, which add so largely to the value of the reports of similar bodies elsewhere, do not appear, and without the discussions to which (we presume) the papers gave rise, some of them are altogether out of place in an annual volume of Transactions.

In the Section of Medicine, Mr. Conolly Norman read an interesting paper on a case of *Grübelsucht*—inquisitive mania—a rare form of insanity, although the author's definition, or explanation, seems applicable to a form of morbid mental activity endemic in the neighbourhood of Westminster during the session of the House of Commons. The disease takes "the form of perpetual interrogations, constant urgent morbid impulse to inquire into and investigate everything, an incapacity to accept contentedly the ordinary postulates of knowledge, and finally a total inability to fix the attention upon anything except the spinning of an endless web of meaningless questions." The paper, though only a report of a single case, is of great value, being admirably drawn up.

The most elaborate paper read in this section is Mr. J. F. Knott's, on the Fever of Over-Exertion, which will not be found to be so formidable on perusal as its serried ranks of organic chemical formulæ make it appear.

In the Section of Surgery three of the fourteen papers were devoted to Supra-Pubic Lithotomy, of which the most important is Dr. Kendal Franks', being an essay, historical and surgical, on the subject. Similar in character and equally valuable is Mr. M'Ardle's paper on Enterectomy and Enterorrhaphy.

In the Section of Obstetrics twelve papers were read, of which the more noteworthy were Dr. Kinkead's on Proofs of Virginity, and Dr. More Madden's on that well-worn but ever-practical subject, Obstructive Dysmenorrhœa and Sterility. May we suggest to the author of the latter that "Israel in the days of Sarah" is what our transatlantic friends call "a little too previous?"

Mr. Norman's paper on the *Ætiology* of Dysentery was "read by desire of the Pathological Section." It is chiefly remarkable for its description of the facilities afforded at the Richmond Asylum for the generation and spread of dysentery, which "is conveyed in the exhalations arising from earth saturated with decomposing organic products." We give the picture of this "desirable residence" in full:—

"Richmond Asylum stands on a rising upland, could have been easily drained, and, if it were constructed on modern principles, might be expected to be a salubrious place. All the surface-soil about the buildings is loose earth, much of it is 'made' earth, all very porous and very shallow, nowhere more than from three to four feet, often not more than eighteen inches, deep. The subsoil is a very thick layer of stiff boulder clay, in the highest degree tenacious and impervious. The buildings are in great part old, and the mode of getting rid of excreta was probably originally very primitive. All the sanitary arrangements have undergone numerous alterations—various parts at various times, but quite without reference to scientific experience, and indeed without definite plan. The usual result has been produced, but to an extent rarely paralleled. It would be inopportune to enter into any minute details; but it may suffice to say that there is ample evidence that the ground under and around the buildings is everywhere saturated with sewage. In some places even the walls have absorbed sewage. Cess-pools exist in close proximity to the buildings. Many are even built in angles of the buildings, so that two house-walls form two walls of the cess-pool. Soil-pipes and sink-pipes open directly into these, and the overflow drains, some square rubble, some badly jointed pipes, run under the

dwelling rooms. From the nature of the soil, as explained, it will be seen that the most dangerous materials must lie and decompose between the surface and the subsoil. The impervious boulder clay admits of no escape" (p. 338).

In a note Mr. Norman informs us that this highly creditable state of things being revealed to the governors in his Report for 1886, "they have generously" adopted a very complete and extensive scheme of new sanitary buildings and drainage."

In the Section of State Medicine will be found a slightly, but justifiably, polemical report of the Coachford poisoning case by Prof. Pearson. His conduct in the matter is completely vindicated, if vindication was needed. Dr. Grimshaw and Sir C. Cameron "collaborate" in a paper on the Distribution of Enteric Fever in Dublin. We note that from 1881 to 1887, for which period annual death-rates are given, whilst typhus diminished considerably, enteric remained almost stationary in spite of large expenditure on sewers and drains. It is also shown that enteric fever is more destructive on the gravel subsoil than on the clay; and let us conclude with a word in favour of our Liffey, which has few friends:—"The exhalations from the river, whatever [undemonstrated] injury they may cause to the public health, do not seem to give rise to enteric fever amongst the inhabitants of the quays."

Early English Text Society. Extra Series, LII. *A Dialogue against the Feuer Pestilence.* By WILLIAM BULLEIN. From the edition of 1578, collated with the earlier editions of 1564 and 1573. Edited by MARK W. BULLEN and A. H. BULLEN. Part I.: the Text. London: Published for the Early English Text Society, by N. Trübner & Co., 57 and 59 Ludgate-hill.

WHEN the New Sydenham Society, on its inauguration in 1859, commenced its career by the publication of modern works on medicine, and adhered to their intention, with the single exception of the production of "Smellie's Midwifery," there appeared very little chance of the student of medical history being able to gratify his desire to study English medicine from its emergence out of the superstition of the mediæval period to its scientific basis of to-day.

* Wales generally gets the credit of having produced the benefactor who

"Of his great bounty,

"Built this bridge at the expense of the county."

Fortunately, however, for the profession, Vicary and Bullein had lived in the most stirring period of England's history; the former was able to tell how, after the destruction of feudalism, England began to recognise her inherent strength, and the people to demand their legitimate power.

The social life of the middle classes, and their sturdy spirit of independence were described by the graphic pen of one of their number, William Bullein, and it is to this fact that we are indebted to the Early English Text Society producing reprints of his work.

The volume before us, edited by two namesakes of the old doctor, Messrs. Mark and A. H. Bullen, was written directly after the terrible plague of 1563; and before entering on an examination of the book we would draw attention to the fact that, like those two masters of English prose, Bunyan and De Foe, Bullein did most of his writing whilst in prison, and, like them, he suffered a life of persecution. Unlike his contemporary, Vicary, he never enjoyed Court favour; and had it not been for the research of Mr. Furnival, the distinguished Director of the Society, Bullein's name might have perished from English literature, for it is a strange fact that biographical dictionaries and literary handbooks, whilst devoting pages to the mediocrities of to-day, are apparently unconscious of the existence of many of the most original writers of the language. Therefore a biographical sketch of Bullein, whose name is wanting in such books, may not be uninteresting.

The date of Bullein's birth is uncertain; he probably was born about 1514, a short time before Henry VIII. met Francis I. of France on the "Field of the Cloth of Gold," and at a time when the venturesome youth of England were being excited by the stories of discoveries of lands of gold, in which El Dorado Spanish adventurers were amassing untold wealth. Bristol was already acquiring distinction as a port for America, and many of the navigators whose names and deeds were to become celebrated were preparing for those voyages of which Richard Hakulyt has preserved such interesting details.

Born in the Isle of Ely, he went with his brother to study at Cambridge, where he acquired a love for botany which the teaching of Cæsalpinus of Padua was then making popular in Europe. As yet Cambridge had no botanic garden, nor was the deficiency made good until near the end of the eighteenth century, although the reputation of the Padua garden had spread over the Continent; therefore, to pursue his studies in botany, Bullein was

necessitated to travel, and northern England, Scotland, France, Germany, and probably northern Italy, were visited by him in pursuit of his favourite science. Returning to England in the reign of Edward VI., he first settled in Norwich, where he published remarks on the natural productions of the country. After a time, however, he removed to Bloxhall, in Suffolk, and finally removed to the north, settling in Durham, where he acquired distinction as a physician. Whilst there he formed the acquaintance of Sir Thomas Hilton, knight, baron of Hilton, Governor of Tinmouth Castle in the reign of Philip and Mary, who became his patient, and appears to have died in his care.

Soon afterwards he came to London, where he was accused by William Hilton, of Bidwick, of having poisoned his brother, Sir Thomas Hilton. The case came for hearing before the Duke of Norfolk, and Bullein was honourably acquitted. Not satisfied with the decision of the Court, William Hilton hired assassins, who attempted to assassinate the doctor, but he happily escaped their hands; Hilton, however, continued his persecution, and finally Bullein was thrown into prison for debt.

Before leaving Durham he published his book, "The Government of Health," 1559, 8vo; and whilst in prison he published "A Regimen against the Pleurisy," 1552, 8vo; "Bullein's Bulwark of Defence against all Sickness, Sores, and Wounds," 1562, 8vo; "A Dialogue both Pleasant and Pitifull," 1564, 8vo. Of this latter the editors of the reprint write:—"The earliest extant edition of William Bullein's 'Dialogue' is dated 1564 (8vo). A unique copy of this edition, which differs considerably from late editions, is preserved in the Britwell Collection. . . . Another edition appeared in 1573, 8vo; a third in 1578, 8vo; and the present edition is the fourth."

Authorship in those days was not an enviable state. Bullein had just left prison to die, and reach his final rest in Saint Giles, Cripplegate, where he was buried in January, 1576, when other needy authors occupied his place, and in the closing years of the century we find Dekker a prisoner for the sum of forty shillings.

The "Dialogue" occupies one hundred and forty pages, and the characters are named as follows, to wit:—*Mendicus, Civis, Vzor, Medicus, Antonius, Roger, Crispinus, Auarus, Ambidexter, Mendax, Mors, Theologus*, who are all like apothecaries' bottles, duly labelled. The book is plainly modelled on the old mystery plays, which were just dying out in England, and the influence of

his surroundings is evident in every page; thus *Medicus*, whilst waiting for the apothecary, *Crispinus*, is examining the things in the room of his patient, *Antonius*, when he comes on a map of "Terra Florida in America." He says:—

"But this Mappe hath reioysed me; there the gold and precious stones and Balmes are so plentiful, silver and spice are nothyng with them; no labour is in that land, long life they have; one thing there is which liketh me not among them.

"*Crispine*: What is that, maister Doctour?

"*Medicus*: They haue neuer sicknesse vntill death doe come; therefore there is no goode dwellyng for vs in such a land. Further, it is saied that they haue no debate nor strife in their common-wealthes.

"*Crispine*: Marie, then it is as vnprofitable for Lawiers as for Phisicians. I truste we shall neuer be in that case in this our countrie.

"*Medicus*: God defende vs from such a Commonwealthe, it would marre altogether. Now let vs go to the chamber doore and see how the worlde goeth with Master *Antonius*, and take our Phlebothomer with vs to let hym bloud."

The following sketch of social life is too good to omit; the scene is laid at a village inn, where the citizen, flying from the plague, accompanied by his wife and servant, are staying to rest for the day:—

"*Roger*: Sir, there is one lately come into this Inne in a greene Kendall coate, with yellow hose, a beard of the same colour, onely upon the upper lippe, a bald chin, a russet hatte, with a great plume of straunge feathers; and a braue scarffe about his necke, in cutte buskens. He is playing at the treatrip with our hoste sonne; he plaieth tricke vpon the Gitterne, and daunce Trenchemore and Hey de Gie, and telleth news from Terra Florida. He looketh a squinte, he daunceth vp and doune; I did see him giue the good man a pece of a Unicorne's horne good against poison; he semeth a pretie scholer. But I heard hym praie the chamberlain in his eare to lende him vi.d. upon a pressing yron, which chamberlain refused the gage.

"*Cinis*: Roger, call hym to dinner, it is some pleasaunte fellowe, and lacketh money; he like through trauaile the poor man is driven to his shiftes, and would make other men merie when he weepeth in his owne harte.

"*Vxor*: Good housebande, call in some graue companie. What should suche Jackes and tos-pottes dooe here? He semeth to be some theef or ruffin. Fie on hym, verlet, fie, fie!

"*Roger*: By our Ladie, I will fetch hym into diner; he is a good companion for me. Wee shall heare newes.

"*Ciuis*: Goe thy waies quickly. . . .

"*Roger*: Sir, here is this gentleman come to keep you companie.

"*Ciuis*: He is moste hartely welcome; set hym a chaire; giue him a trencher and a napkin. I praie you take parte of such as God hath sente; if it were at London I might make you better chere, but here I cannot."

Mendax introduces himself, and recounts his wonderful stories of travel:—

"Sir, I was borne nere vnto Tunbridge, where fine kniues are made; my name is *Mendax*, a younger brother linially descended of an auncient house before the Conquest. We giue three Whetstones in Gules with no difference, and vpon our creste a lefte hand, with a horne vpon the thombe, and a knife in the hande."

In this native of Tunbridge we have the original of Captain Lemuel Gulliver, "*Splendide Mendax*," who was first a surgeon, and then a captain of several ships; and the Flying Islands of Laputa has a very great resemblance to the floating islands met with in the *Lamiam* Sea, which "woulde by the winde shifte from place to place," and which some of the voyagers declared to be shreds "of the bankes of Paradise." Did Shelley form his line—

"Beautiful as a wreck of Paradise,"

from this legend? and is it not strange to find the fiction of Bullein realised three hundred years later by Darwin ("*Naturalists' Voyages Round the World*"), who on Lake Tagua-tagua, in Chili, found floating islands. "Their form is generally circular, and their thickness from four to six feet, of which the greater part is immersed in the water. As the wind blows, they pass from one side of the lake to the other, and often carry cattle and horses as passengers."

To the inquisitive patient, *Antonius, Medicus* gives the following description of the plague and its treatment—to wit:—

"A commyng forthe like a *Bubos* are signes of those partes from whiche they doe swel; as example, in the left side, head, neck, flankes, &c. But often tyme the Plague sore will not appere; the very cause is this: Nature is to weake, and the poyson of the infection to strong that it cannot be expelled, and this is moste perillous of all, when such a small conqurrouer doth raigue within the harte, the principall part of life, nowe possessed with death. The causes of this I haue declared before, with signes to the same; notwithstanding, consider two thinges: first, whether it is in bodies Sanguine and cholerike, or theim whiche are

Flegmatike or Melancholie, or not twoo, bloud is the cause, the seconde twoo aboundance of euill humours. Therefore let blood, where as it victorie, and purge whereas other humours hath predomination or chief rule; in some men that haue verie stronge bodies, firste purge, then let bloud. Note this: that what side be infected let blood on that side; if it be above the hedde, open *Cephalica*; if it be vnder the armes, *Basilica*, or harte veine; if it be aboute the throte, then open *Melleola*; about the flankes, bealie, legges, &c., open *Jecoriaria*. If thei are verie weake or yong, then boxyng is good to the necke, shoulders, backe, and thighes; if the stomacke be full, then with speed vomet, and these thinges draw he the venome from the hearte and remove the poison."

Bullein was the contemporary of Caius, Coxe, Linacre, and Vicary in England, Cæsalpinus and Gabriel Fallopius of Padua, Fabricus of Lausanne, and Servetus of Villanueva; and he was the immediate predecessor of Harvey and the immortal Sydenham.

Bullein is remarkable for both the variety and depth of his knowledge. At some future day, when the profession will have shown some evidence of a love of literature—for we hope the existing indifference to that for which we are indebted to the past, and to what posterity demands of us, will not always continue—we may have the remaining works of Bullein, and also the writings of Borde. Be this, however, as it may, we cannot be too thankful to the Early English Text Society for giving us the present reprint of Bullein, of whose "Dialogue" directness, simplicity, and dramatic effect are the characteristics.

Lastly, we would draw attention to Bullein's contemporaries and immediate successors—men of great and varied accomplishments; men who loved Medicine for herself; men who won and preserved an honoured place in the memory of the people; men who neither sought, nor desired, nor took State titles, and amongst whom the honour of medicine and the welfare of the people were the first consideration.

Illustrated Lectures on Ambulance Work. By R. LAWTON ROBERTS, M.D. Third Edition. Illustrated. London: H. K. Lewis. 1888. Pp. 206.

THIS is one of the many "First Aid" publications called into existence by the institution of popular lectures by the St. John Ambulance Association. Although termed "Lectures," the book contains much more than could be given in five lectures, and, indeed,

deserves the name of "Handbook," as the whole subject is carefully and somewhat fully dealt with. Although somewhat long to be used by most persons attending "First Aid" classes, Dr. Roberts' book will be of great assistance to those who take a real interest in the subject, and who wish after their examination to follow it up. Dr. Roberts has carefully avoided giving any encouragement to his pupils to act except in the unavoidable absence of a medical man.

THE CARMICHAEL PRIZE ESSAYS, 1887.

1. *The Medical Profession of the United Kingdom.* Being the Essay to which was awarded the First Carmichael Prize of £200 by the Council of the Royal College of Surgeons in Ireland, 1887. By WALTER RIVINGTON, B.A., M.B. and M.S. Univ. Lond.; F.R.C.S. Eng.; Surgeon to the London Hospital; Lecturer on Surgery at the London Hospital Medical College. Dublin: Fannin & Co. 1888.
2. *The Medical Profession in the Three Kingdoms in 1887.* The Essay to which was awarded, under the name of "Ἀπιστείδης," the Carmichael Prize of £100 by the Council of the Royal College of Surgeons, Ireland, 1887. By THOMAS LAFFAN, M.C.P.I., Cashel. Dublin: Fannin & Co. 1888.

WHY these formidable volumes are called "Essays" it is hard to discover. The one distinctive character of an essay is its individuality. In no other form of prose composition does the writer come more prominently forward. He essays a something, and you mark his effort and note the result. You see his strength put forward, and you mark his failure or success. It may be either the crude attempt of youth, or the matured opinions of a man familiar with his subject. In one sense the title essay may be considered appropriate, if Crabb's definition is accepted:—"The essay is the most popular mode of writing—it suits the writer who has not either talent or inclination to pursue his inquiries farther, and it suits the generality of readers, who are amused with variety and superficiality."

Who could have thought that the elaborate scheme of Mr. Carmichael to benefit the profession he so loved and adorned would have so miscarried as to produce these cumbrous, unread, and unreadable volumes—books which, as Charles Lamb once, in

disgust with such literature, defined as "Books which are no books."

It is true that some unread books have deeply influenced men's minds, and affected millions for good or evil, who are unconscious of their existence. Every civilised state was made better by the "Areopagitica," and Christendom has been influenced by "The Descent of Man." But from the first prize awarded for a Carmichael Essay until this day no thinker has been influenced by one of them, and to the populace they are unknown.

No more useless expenditure of money can be made, and we are confident that, had Richard Carmichael had an idea that his well-intentioned scheme would have become so utterly unsuited for the purpose for which it was intended, the grant would never have assumed its present form. However, this risk always exists in founding any institution, and we cannot but think that the Council of the Royal College of Surgeons in Ireland might do something to minimise the evil. It always reminds us of what Captain Lemuel Gulliver saw in Luggnagg. He writes:—"One day, in much good company, I was asked by a person of quality whether I had seen any of their *Struldbruggs* or *Immortals*. I said I had not, and desired he would explain to me what he meant by such an appellation applied to a mortal creature. He told me that sometimes, although very rarely, a child happened to be born in a family with a red circular spot on the forehead, directly over the left eyebrow, which was an infallible mark that it should never die. . . . That these productions were not peculiar to any family, but a mere effect of chance, and the children of the *Struldbruggs* themselves were equally mortal with the rest of the people. . . . I cried out in rapture, 'Happy nation, where every child hath at least a chance for being immortal! Happy people, who enjoy so many living examples of ancient virtue, and have masters ready to instruct them in the wisdom of all former ages! But happiest beyond all comparison are those excellent *Struldbruggs*, who, being born exempt from that universal calamity of human nature, have their minds free and disengaged, without the weight and depression of spirits caused by the continual apprehension of death.'"

On visiting them, however, the Captain found them the most undesirable of persons. "At ninety they lose their teeth and hair; they have at that age no distinction of taste, but eat and drink whatever they can get, without relish or appetite. The diseases they were subject to still continue without increasing or diminish-

ing. In talking they forget the common appellation of things, and the names of persons, even of those who are their nearest friends and relations. . . . The language of this country being always upon the flux, the *Struldbruggs* of one age do not understand those of another. Neither are they able, after two hundred years, to hold any conversation further than by a few general words with their neighbours, the mortals, and thus they lie under the disadvantage of living like foreigners in their own country. . . . They are despised and hated by all sorts of people. When one of them is born it is reckoned ominous, and their birth is recorded very particularly, so that you may know their age by consulting the registry. . . . They were the most mortifying sight I ever beheld. . . . Besides the usual deformities in extreme old age, they acquired additional ghastliness in proportion to their number of years, which is not to be described."

Has the profession of medicine a *Struldbugg* in the Carmichael scheme? And if so, is the fault inherent in the scheme, or have the trustees permitted the intentions of Carmichael to be frustrated by awarding the prizes to such volumes as lie before us—for these two books of shreds and scraps—compiled from historical sketches and students' numbers of medical periodicals.

As if to signalise their indifference to the quality of the essay, the trustees appear to have awarded the prizes in proportion to the weight of the manuscripts. Thus, we find Mr. Rivington's essay, weighing four pounds, is awarded the £200 prize; and Mr. Laffan's essay, weighing only close on two pounds, is awarded the £100 prize—the essays being palpably treated as waste paper, and we greatly fear that this will be their ultimate and final destiny.

We ask the profession, is this condition of affairs to be allowed to continue? Are prizes of £200 and £100 to be paid for compilations that would weary Teufelsdröckh himself?—compilations which serve no useful purpose, which are devoid of originality, and are simply rehashes of editorials which from time to time have appeared in medical journals, together with the curricula of the different colleges, and excerpts from modern medical histories. As we read them we find ourselves compelled to charge the Council of the Royal College of Surgeons in Ireland, in rewarding such literary productions as these, with defeating the evident aims of the illustrious testator.

New York Cancer Hospital. Second and Third Annual Report.
1886-1887.

THIS is not a report of a hospital in the ordinary sense of the words, inasmuch as the New York Cancer Hospital (which owes its origin mainly to Mr. John J. Astor's munificent donation of £55,000) was not yet open for the reception of patients when this report appeared. Information, therefore, upon the grave questions of the prevalence and spread of carcinomatous affections in the United States is given only incidentally, in an appendix describing the formal ceremonies with which the institution was opened on the 6th of December, 1887. Strange to say, it is the first hospital in America, and the second in the world, devoted to this most distressing class of diseases. It is at present available for female patients only. Two points in its construction may be noted. Firstly, "it has been found by experiment that the air of each ward can be changed completely, with closed doors and windows, every five minutes, without production of annoying and dangerous draughts." Secondly, the wards are circular, forty feet in diameter, accommodating thirteen patients each, built in towers. "Ample light is secured by the exposure on three sides of the ward; the absence of angles and corners promotes cleanliness; the patients are under the immediate observation of the nurse in centre of the ward to a degree impossible with the parallelogram form; the radiate arrangement of beds permits ampler space between the heads of the beds; the more ready access to the patients saves labour on the part of the nurses; and lastly, but not less important, the very cheerful aspect of wards of this construction is not without value in depressing illness."

So far as we are concerned the most interesting part of the proceedings was Dr. Fordyce Barker's address, from which we extract some figures, showing the prevalence and distribution of cancer in the United States. Dr. Barker gives corresponding information for England and Wales, but with these we assume our readers to be familiar. In the city of New York in 1875, deaths from cancer were 400 to the million; in 1885, 530. In the United States census of 1880 "the proportion of deaths from cancer to the total number of deaths reported from known causes was 36.68 to 1,000." As regards geographical distribution—"The last census of the United States demonstrates that this disease is especially prevalent in the New England States and on the Southern Pacific coast;

that it is prevalent in New York, Pennsylvania, Ohio, and in the interior of Michigan, and the southern part of Wisconsin; that it is least prevalent upon the Mississippi and in the South; and that the proportions are generally lower in the coast regions than in the interior." Differences in composition of population afford some explanation of peculiarities in topical distribution. Thus, "it is a disease which is much less frequent in the coloured than in the white race, hence the mortality from it is greater in the North than in the South. It causes the greatest proportion of deaths where there are the greatest proportion of people of advanced age—that is to say, in the New England States. Hence in any given locality a large proportion of deaths from cancer indicates, to a certain extent, that the locality is a healthful and a long-settled one, and has a large proportion of inhabitants of an advanced age."

On the question of hereditary transmission of cancer, Dr. Barker speaks strongly:—

"I have more than once been asked in those pathetic tones which tell of heart-breaking anxiety: 'Are my children or is my daughter doomed to suffer as I do now?' The answer given in no equivocal words is, 'The probability of such a doom for any descendant of yours is extremely small.' In all the statistics which I have been able to collect, where the antecedent family history seemed to be trustworthy, I have found that the proportion of those who have had cancer, in whom some relative of a former generation is reported to have had some form of malignant disease, to be only 13·65 per cent. On the other hand, in one family which has in the present generation the largest number of victims that I have ever personally known, I have authoritative proof for asserting that no development of any form of malignant disease has ever existed in three previous generations, including collateral branches."

Periodicals, Transactions, and Reports in the Library of the New York Academy of Medicine. Part I. United States and Great Britain. Boston: Rockwell and Churchill. 1889. Pp. 71.

THIS very useful reference-list is published under the direction of an able Committee, called the Library Committee of the New York Academy of Medicine. It is the first publication of the kind offered to the Academy, and includes every periodical and journal issued in successive parts in the United States and in Great Britain, at present in the library of the Academy. In the case of the various publications any missing numbers or volumes are

indicated, and the Committee hope that the generosity of those who consult this journal-list will speedily lessen these deficiencies.

The type is all that can be desired, and the list cannot fail to prove most useful to writers who have occasion to refer to periodical medical literature.

Transactions of the Association of American Physicians. Third Session. Held at Washington, D.C., September 18, 19, 20, 1888. Vol. III. Philadelphia. 1888. Pp. 404.

Of the twenty-five papers included in this volume, one of which is a short address by Dr. William H. Draper, the president of the Association, not one can be called weak, and most are of more than average excellence. Reports of discussions add much to the value of the articles. Although five were taken as read, the amount of work accomplished in six sittings was exemplary. The first paper read—by Prof. W. W. Johnston, M.D., of the Columbian University—on the “Geographical Distribution of Typhoid Fever in the United States, its relation to Fevers of Malarial Origin and to Obscure and Unclassified forms of Continued Fever,” is based upon 350 replies to a circular of queries addressed to practising physicians, the greater number in malarial localities. In the Carolinas, Georgia, and Florida, malarial regions, the belief in a typho-malarial “type of fever,” which conforms neither to the type of malarial nor to that of typhoid fever, and which results from the blending of the features of the two diseases, is held by rather more than half of the respondents, while nearly half do not recognise the hybrid. The reporters from Alabama, Mississippi, Lower Louisiana, and the Gulf Coast of Texas, are similarly divided in opinion. In the remaining districts in which paludal fevers prevail the existence of a typho-malarial fever is generally recognised, but there is little agreement as to its nature or definition. Dr. Johnston concludes that “as at present employed the term typho-malarial fever has no determined meaning, leads to confusion and misunderstanding, is a cover for uncertainty and ignorance, and should be discouraged and abandoned.” There is “amazing variety in the combinations of symptoms supposed to be diagnostic of this form of fever,” “and the most conflicting views are held as to what constitutes its symptomatology.”

A most important practical question, of interest to the physician and to the public, the Relation of Albuminuria to Life Assurance,

is briefly treated of by Prof. James Tyson, M.D., of the University of Pennsylvania. We condense his statement of the conditions which would justify an assurance company in accepting an albuminuric life. The applicant must be in all other respects healthy; there should be *no casts* in the urine; the quantity of albumen should not be large—i.e., should not “habitually exceed one-fifth the bulk of the specimen examined;” the specific gravity (*of the twenty-four hours’ urine*) should be at or above 1020; there should be no sign of hypertrophy of the left ventricle or of high vascular tension; the applicant should be under forty; there should be no gouty taint; and retinal symptoms should be absent. If these conditions be fulfilled the albuminuria may be considered “functional,” and the risk accepted. Dr. George M. Sternberg, “major and surgeon,” U. S. army, described his recent microscopical investigations into the ætiology of yellow fever at Havana. He made ten autopsies, most of them within three hours after death. His conclusions are disappointing:—“The specific infectious agent in yellow fever has not yet been demonstrated.”

INTESTINAL SURGERY.

At the meeting of the Royal Medical and Chirurgical Society on the 12th of March, W. J. B. Jesset read a paper on a novel method of operating in intestinal surgery, in which he uses approximation plates of decalcified bone, or rubber bands, by which he claims, from experiments conducted on dogs, by himself, Mr. Victor Horsley, and Dr. Dove, that his method lessens the mortality of resection operations from 86·6 per cent. by the Czerny-Lambert method, and 24·92 per cent. in Semi’s method, to 7·69 per cent. The advantages claimed for the operation are simplicity, expedition, and better results. The author uses only from four to six sutures, whereas by the Czerny-Lambert method fifty or sixty are required. The operation could be performed in about twenty minutes, whereas the present mode of operating required quite an hour and a half. Dr. Nicholas Semi’s papers on enterectomy appeared in the *Annals of Surgery*, Vol. VII.

HEPATIC ABSCESS BURSTING INTO THE PERICARDIUM.

DR. JOAQUIN L. JACOBSON, Havanna, reports (*Revista de Cirucias Medicas*, 20th Feb.) the case of a white man, aged thirty-nine, in whom an abscess of the left lobe of the liver opened into the pericardium. The abscess was on the convex posterior border of the lobe, and out of the reach of an exploring needle. Dr. Jacobson has found similar recorded cases.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SAMUEL GORDON, M.D., F.K.Q.C.P.I.

General Secretary—W. THOMSON, M.D.

SECTION OF OBSTETRICS.

President—W. J. SMYLY, M.D., F.K.Q.C.P.

Sectional Secretary—ANDREW J. HORNE, F.K.Q.C.P.

Friday, April 12, 1889.

DR. ATTHILL in the Chair.

Specimens of Spondylolisthesis.

DR. E. H. BENNETT exhibited two specimens of spondylolisthesis from the same subject—a spirit mounting of one half of the specimen, and the second half mounted as a dry preparation. The other, a pelvis with the fourth and fifth lumbar vertebræ, showing displacement of the fourth vertebra on the fifth. A great many years ago the second of these preparations came into his possession, and he put it amongst the collections of fractures of the spine in Trinity College Museum. His object in showing these specimens in that Section was on account of their special obstetric interest. The specimen showing displacement between the fourth and fifth vertebræ was wanting in the ordinary characteristics of fracture of the spine, the posterior portion of the neural arch being left in its normal position detached with the inferior articular processes from the remainder of the bone, which, without further fracture, was displaced directly forwards. The question which arose was whether this displacement was the result of violence or of disease; the question of congenital lesion could not arise with regard to this specimen. Two years ago Professor Cunningham was studying the question of the normal curves of the human spine, and amongst the spines submitted to examination that which furnished the dry mounting

and the spirit preparation turned up. It presented a deformity between the fifth lumbar vertebra and the promontory of the sacrum. Spondylolisthesis had taken place to the extent of about one-third of the width of the body of the vertebra. There was no history of the case, but the spine was that of a female, and there was also a record that the muscles of both thighs, particularly the adductor muscles, were in a condition of fatty degeneration, which showed that the lesion of the spine had produced pressure upon some of the nerves of the cauda equina. His attention had been directed to this subject by a monograph published by Neugebauer in the recent issue of the New Sydenham Society, and it was upon reading that monograph that it occurred to him for the first time that these specimens had such special obstetric interest. Altogether there were 19 cases of this lesion recorded up to the present. The first occurred in 1853, and the other cases had accumulated since. The question discussed by Neugebauer was whether the lesion had a congenital origin, or was the product of inflammatory disease, or the result of fracture. Judging from these two specimens he (Dr. Bennett) had no hesitation whatever in endorsing the view adopted by Neugebauer that in the majority of instances the lesion was traumatic. In the specimens before the Section there was absolute proof that the lesion was neither congenital nor the result of Potts' disease. The evidence on that point was this. It would be seen that the vertebræ were fully formed, though unfortunately in the macerated specimen the posterior portion of the fracture had been lost. On the opposite side the whole of the neural arch was remaining. The spinal arch was complete, and the portions of the vertebræ which were separated from each other by the lesion had developed by rubbing the ordinary features of chronic rheumatic arthritis. In the articulation of the fifth vertebra there were fully-developed signs of that affection, but its being confined to the one place was a proof that fracture was the cause of the lesion, and that the displacement was not the consequence of previous tubercular or that known as chronic rheumatic arthritis. If the chronic rheumatic arthritis had been the cause of the condition of the vertebræ that had led to the displacement, it would have existed more generally through the spine. But instead of that it was localised, having just developed in the same limited way that it did in cases of unreduced dislocations. There was nothing to show that Potts' caries or any inflammatory condition of the bone had preceded the displacement. There was then no conclusion possible but that injury was in both cases the direct cause of the lesion.

On the Treatment of Prolapsus Uteri by Massage and Pelvic Gymnastics.

DR. ALFRED SMITH read notes on the treatment at the Rotunda Hospital of six cases of prolapsus uteri by Thüre Brandt's method of massage and pelvic gymnastics. The technique of this special treatment

consists of, firstly, in the lifting of the uterus; secondly, in massage of the uterus and its ligaments; thirdly, in forced separation and forced closure of the knees; and fourthly, in tapotement of the lumbar and sacral vertebrae.

The duration of these four exercises, which are performed at one sitting, is from 15 to 20 minutes, and should be repeated daily for a period of from two to eight weeks. The sitting having concluded, the patient turns on her face, and remains in that position for about 10 minutes. The importance of regular attendance during the period above specified must be impressed on the patient, who, perhaps feeling her condition improved, is apt to become irregular.

Case I.—Jan. 16, 1888.—M. C., aged fifty-four; five children; twelve years past change of life; complete prolapse of one year's duration; never wore instruments. Treated as above for 13 days. *Result*: Complete cure of six months' duration.

Case II.—Feb. 10, 1888.—E. I., aged thirty-two; one child; prolapse of cervix for one year and ten months; was treated by pessaries without success; duration of treatment 13 days. While under treatment became pregnant, which necessitated discontinuance of treatment.

Case III.—June 22, 1888.—C. C., aged forty-five; two children; partial prolapse for five years; complete prolapse of uterus for past year. Cystocele, treated by various Hodge's pessaries, without benefit. After a 16 days' course of massage, &c., a No. 8 Hodge could be worn with the greatest relief, which benefit continues up to present time.

Case IV.—June 28, 1888.—B. R., aged fifty-eight; five children; complete prolapse of three years' duration; duration of treatment 12 days. Patient was under observation for 16 days, during which the uterus remained in its normal position, and she was able to perform her household duties.

Case V.—June 28, 1888.—C. M., aged sixty; three children; ten years past change of life; for past fourteen years has been suffering from prolapse of the uterus, which on examination was found greatly atrophied. A No. 8 Meyer's ring gave her relief at first, but latterly came out when making any exertion; was enabled after 10 sittings to wear with great benefit and comfort the same sized Meyer's ring. When seen six months afterwards the pessary had lost none of its efficacy.

Case VI.—Nov. 17, 1888.—Mrs. S., aged fifty; two children; prolapse of uterus twenty years' duration. After five days' treatment uterus remained in its normal position for over one month, when it again prolapsed. The patient lived at too great a distance from hospital to continue treatment. A 5½ Hodge, modified, introduced.

These results are not so brilliant as those obtained and recorded by

Paul Profanter,^a Thüre Brandt,^b Prof. von Preuschen,^c Schauta,^b and others, and might even be considered by some inconclusive, yet my reason for bringing this record of cases before you is not so much on account of the brilliancy of the results obtained as that I believe the special treatment is one capable not only of effecting permanent cures, but certain to prove a powerful auxiliary to the pessary in the treatment of prolapse, and further promises to be of great use in many cases of retroflexion or version, an essential condition of which is a descent of the uterus; therefore any such method cannot but claim our earnest consideration.

DR. WM. BAGOT said, having seen Dr. Smith's cases, and having for some time practised this method himself with varied success, he felt bound to say that his results had been such as would lead him to believe that his failures were in great part due to lack of patience and skill in carrying out the treatment. In conclusion, he felt convinced that this method would prove a most valuable aid in the treatment not only of prolapse, but also of retroflexion of the uterus. As a supplement to Dr. Smith's paper he read reports of two cases which had lately come under his care, and which he had treated successfully single-handed, to do away with, if possible, the necessity of having an assistant. Tapotement was omitted in the treatment. This woman was present in order that any of the members of the Society might ask her any questions they thought fit. Dr. Bagot's failures were in cases where there had been extensive laceration of the perinæum, or in cases of prolapse of the vagina with senile atrophy of the uterus.

DR. MACAN said any system of treatment which would enable women who had to earn their bread by labour to carry on their work without discomfort or the use of a pessary ought to receive a trial. It was, however, undoubtedly an objection to the system that it required, in the application of it, the services of an assistant who was required to have his fingers in the woman's vagina during the entire of the process. How far the portion of the treatment which was called "uterine gymnastics" was the cause of its efficacy it was difficult to say, or to what extent the tightening of the ligaments above was a cause of the cure. The resistance offered by the ligaments to the coming down of the uterus was very slight.

DR. DILL said he was quite prepared to adopt any new mode of treatment that would be better and easier than the wearing of a pessary; but he had yet to learn that a well-adjusted pessary was capable of causing the slightest inconvenience to a working woman. Pessaries were not only adequate in keeping the uterus in a proper position, but that in

^a Die manuelle Behandlung des Prolapsus Uteri.

^b Heilgymnastische Behandlung weibliche Unterleibskrankheiten.

^c Centralblatt für Gynäkologie. No. 13. 1888.

time they strengthened the ligaments, without the performance of such gymnastics as formed part of the method in question, and he did not believe that patients, particularly those belonging to the upper classes of society, would submit to the immense amount of manipulation that this new method involved. The time it took and the indelicacy of part of it were great drawbacks.

DR. BYRNE said he never himself tried massage, but he was of opinion that the cases which had been brought forward by Dr. Smith and Dr. Bagot were quite sufficient to encourage them to try it.

The CHAIRMAN said according to his (Dr. Atthill's) experience, which extended over forty years, the patients who used pessaries might be divided, as regarded the results, into three classes. One, which included a considerable number of patients, consisted of persons who derived great benefit from the use of the pessary, and experienced either no inconvenience at all from it, or so very little that they allowed the pessary to remain in the vagina for a very long time. In another class of cases if the pessary was removed after short intervals, washed, and replaced, the patients bore it for years and passed through life with comfort. But a third class of cases was met with in which the patients could not bear the pessary, or if they did try to bear it it injured them. Therefore he (Dr. Atthill) hailed any remedy that would be of assistance in the treatment of such cases. He admitted, however, that the necessity for an assistant was an objection to the form of treatment in question, although Dr. Bagot's cases showed that the assistant was not always necessary, for it would seem that it was sometimes possible for the medical man to draw up the fundus of the uterus with his left hand while his right was occupied with the vagina; and having once got the fundus raised he could apply his two hands to the rest of the process. He admitted that he did not at present understand how the cure was effected by this process. He was at a loss to understand how the extension and closing of the legs could have the desired effect equivalent to what the gymnastics had.

DR. C. F. MOORE said the *rationale* of the cure by this process seemed to him to be that there was a determination of blood from the prolapsed uterus to the adjacent muscles, by which a tone was given to the muscles, their bulk increased, and a support furnished to the uterus.

MR. DOYLE said the process was only on trial as yet. He wished to ask was it necessary to keep the patient in bed all the time?

DR. SMITH (in reply) said that in six cases he carried out the method exactly as he found it described in the books. At present, however, he was not exactly following the prescribed method, and was carrying out the process by himself. The most satisfactory results he had yet attained had been in two cases, which he hoped to bring before the Section at a future meeting. During his short experience he had not found pessaries

to be universally successful—patients had come to him saying that the pessary was no use to them; massage and gymnastics had been of the greatest use in those cases. As to adhesions in prolapsus uteri he had met with none. As to Mr. Doyle's question they had not a single patient in the Rotunda who was undergoing the treatment in bed at all. They came into a room, underwent the treatment, which occupied from five to ten minutes, and then were sent home, the only restriction placed on them being that they were not to go up flights of stairs or lift heavy pails of water.

Solid Ovarian Tumour with Microscopic Specimens.

DR. MACAN exhibited a solid ovarian tumour with microscopic specimens. It was a tolerably rare specimen. The patient was a woman aged sixty-eight; she was sixteen years past the change of life, but had been very badly attacked with menorrhagia. He found that she had a retroverted or retroflexed uterus, with a pelvic tumour the size of his closed fist. On a bimanual examination the tumour slipped into the hollow of the sacrum, and it could afterwards be moved up into the pelvis, so that it was evident that the pedicle was long. They scraped out the uterus at the hospital, which had the effect of curing the menorrhagia. Afterwards she came to him from time to time, but on each occasion seemed to be losing flesh. Then the tumour became abdominal and she began to grow uncomfortable. It was still very hard but was quite movable. That day week he removed the tumour, which was then the size of a child's head. There was no difficulty in tying the pedicle. There was one point of moment about the matter. He had been looking at this tumour for two years without interfering with it; and if it should turn out to be a carcinoma the case would certainly be sufficient to make them all careful how they left such tumours alone so long without operating at a time when there would be a chance of preventing the disease from spreading.

SECTION OF MEDICINE.

President—LOMBE ATTHILL, President of the King and Queen's College of Physicians.

Sectional Secretary—A. N. MONTGOMERY, M.K.Q.C.P.

Friday, March 1, 1889.

The PRESIDENT in the Chair.

Teneriffe as a Health-Resort.

DR. J. K. BARTON read a paper on Teneriffe as a health-resort. He began by describing the way to get to Teneriffe, which may be accomplished in seven days from London by the steamers of the Shaw-Saville

Line, which call at Plymouth, from which it takes five days; the return ticket, 1st class, by this line is £25. But it can be done much cheaper by the African Steamship Co., whose vessels leave Liverpool and arrive at Teneriffe in nine days, the price for a 1st class return being £15.

Santa Cruz is the port where the steamers cast anchor. Oratava lies at the other side of the island, 20 miles away; a capital road connects the two, over which the visitor is conveyed in a carriage with three horses, which take six hours, one being allowed for rest and feeding at Mateenga, half way. Oratava is the chief place where invalids congregate, and here there is very good accommodation, at moderate cost. The time for Oratava is from December to May. From May to December Oratava is much too hot and relaxing, and all invalids should leave Oratava before this, and if they remain in the island, take up their abode at Lapena, which stands on the central ridge, five miles from Santa Cruz, and fifteen from Oratava. The climate of Teneriffe is most delightful. Hot in summer, even at Lapena, but the heat there is never more than 85° F., and this only very occasionally. The rainfall is very slight, and the air is undoubtedly much drier than that of Madeira. The special features of the climate are equability, dryness, and warmth, with still a most refreshing breeze.

The cases that seem most suited to the climate of Teneriffe are those of bronchitis and all inflammatory diseases of the lungs, for which a mild winter is demanded; all such do remarkably well. Sufficient time has not yet elapsed to prove how far Teneriffe is suited for the early stages of phthisis; but Dr. Wharry thinks that the elevated air of Lapena will be found more suitable for such cases than the more sheltered Oratava.

The food is very fairly good, abundant and moderate in cost; accommodation is improving rapidly, and soon will leave nothing to be desired. There is abundant healthy employment, specially in riding all over the island by means of bridle paths, which intersect the island in all directions, and active, safe little horses are hired every day at a very moderate tariff.

In short, Teneriffe was shown to be a valuable addition to the list of winter quarters for chronic inflammatory lung diseases, and at the same time a most agreeable change for over-worked men or women, where, in the spring months, bright sun, warm air, and many sights to interest and amuse, may be obtained, when the weather at home is most disagreeable and dangerous.

DR. WRIGHT inquired particulars of the travelling and hotel expenses, and whether suitable lodgings were obtainable; and what cases were likely to be most benefited by the climate.

DR. A. W. FOOT sought information as to the potability of the water, the condition of the drainage, the nature of the subsoil, and the extent

of the rainfall on the island, remarking that though the wine had been long celebrated, yet persons of bad taste or good, according as it might be viewed, desired to drink water; and as regards subsoil, if there were considerable rainfall, and no means of carrying it off by suitable subsoil, there must necessarily be a great accumulation of surface moisture.

DR. JAMES LITTLE, while attaching importance to Dr. Barton's personal experience of Teneriffe, held that an opinion ought not to be formed too precipitately with regard to the position of the island as a health-resort, since health-resorts recommended on theoretical grounds had very often proved illusory. Judging, however, from the description of the climate and the effect of other health-resorts, he considered it likely that Teneriffe would fulfil the expectations formed of it for bronchitic and emphysematous people, but he doubted the advisability of recommending the climate for consumptive patients. Sir William Gull had given his experience of warm and moist climates as extensive, but unsatisfactory; and it was hard to believe that a small island in mid-ocean could have other than a humid climate. It was well established that the influence of climate as regards heat or temperature was of very little consequence, but that dryness of the air was of very great consequence. He had himself seldom seen consumption advance on the banks of the Liffey with the rapidity with which it advanced on the banks of the Ganges, where the atmosphere was warm but moist. An atmosphere of dry air, however cold, was the one that opposed the greatest obstacle to the progress of pulmonary consumption. Thus patients suffering from that disease got on remarkably well in the depth of winter in Canada, because of the purity and dryness of the air. Of all the climates that of Colorado was the one which seemed to him to be the best for purity of air and dryness—the two great factors in combating the disease.

DR. FALKNER pointed out that invalid Europeans returning from the west coast of Africa found it necessary to stay a fortnight or a month in Teneriffe to recruit their health.

MR. J. J. MURPHY said that a patient of his suffering from chronic bronchitis, with premonitory symptoms of phthisis, was six weeks in Teneriffe, and he came home perfectly cured. His description of the climate confirmed Ernest Hart's—namely, that it was somewhat similar to the climate of Madeira, but much drier; in fact, he had been a fortnight in Madeira and was disappointed.

DR. BARTON replied. A 1st class return ticket, available for a year, from Liverpool to Teneriffe, would cost £15, and from London to Teneriffe, with superior accommodation, £25; while the rate of living on the island would not exceed 10s. a day, lodgings, exceedingly clean and nice, being more economical still. Breakfast, which was rather a heavy meal, would cost from 2s. to 2s. 6d., and a pretentious dinner from 3s. to 4s. Chronic bronchitis, emphysema, and kindred diseases were those for which the

climate was best suited, but he did not think the island took the palm in the early stages of phthisis. Those who spoke from experience attested that the climate of Teneriffe was much drier than that of Madeira. He advised, however, that consumptive patients should avoid Oratava in summer as moist and hot, and that they should go to the high lands in that season. He knew nothing of the subsoil of Teneriffe beyond observing that fissures along the road presented all the characteristics of clay and ashes traceable to volcanic origin. The water supply from springs was abundant and pure, and was drunk freely by all the visitors with apparently perfect safety. The drainage, however, was primitive. At the hotels the familiar earth closet was used, and being well supplied with antiseptic earth it seemed to answer the purpose.

Notes of Cases of Myxœdema, of Senile Chorea, and of Paraplegia occurring in a Diver.

DR. C. J. NIXON read a series of select clinical reports. The first of these was on a case of myxœdema. He exhibited the patient. He also described and exhibited a case of senile chorea, and reported a case of paraplegia occurring in a diver. [His paper will be found at page 369.]

DR. A. W. FOOT said it was curious that diver's paralysis was not seen more frequently in Dublin, having regard to the fact that for six months of the year, twice in the month—at the full moon and the new moon—divers were in active operation in the River Liffey, but their immunity from the disease was doubtless due to the diving arrangements being of the most perfect description. The man whose case Dr. Nixon described had been forcibly submerged with weights to the heels, whereas the diving-bells used by Mr. Bindon Stoney, the Engineer of the Dublin Port and Docks Board, were so large that a dozen men could be accommodated in them with ease, and they were enabled to remain eight hours under water. The depth at which they worked was not very great, no more than 30 feet in spring tides, and yet they frequently suffered from the effects of compression, the nose bleeding either while down or when they came up. But they were never attacked with paralysis, owing, doubtless, either to the perfection of the arrangements of the diving-bells, or perhaps because they were not down deep enough. He was glad that Dr. Nixon agreed with Dr. Gowers that the lesion in these cases was a disseminated myelitis in the dorsal section of the cord. Chorea in the majority of cases was a functional disease, as it acknowledged a variety of causes which a structural disease would not. Thus, fright had pre-eminence; but there were many cases which had nothing to do with fright. Again, the disease had no constant pathological lesion. No doubt some pathologists had from time to time announced a special lesion for chorea, but it remained the fashion only for a while, and had to be discarded. Thirdly, the chorea was curable by any and by no medicine. Dr. Wilkes' opinion was that the best

medicine of all for young persons was six weeks in bed in hospital, and leaving the disease alone. Fourthly, the disease attacked the nervous system when most obnoxious to impressions. If there was any pathological constant connected with the disease it was debility. The persons who suffered were of a weak, mobile, nervous system, and therefore tonics and everything opposed to debility would help them to get better.

DR. BIRMINGHAM said he had examined the spinal cord of three subjects by means of a medium injection, and in two out of the three he found the anterior spinal artery injected the whole way down, not only to the end of the cord but a considerable distance beyond. When he went to the lower part of the cord, from the origin to the end, not a single reinforcing artery in any of the injections was completely filled. The fact that he was unable to inject them with a pretty fine injection suggested the inference that certain conditions might arise during life which would prevent or retard the flow of blood from those arteries in the same way as the injection was retarded.

MR. DOYLE said the patient exhibited with chorea looked like a malingerer. He asked Dr. Nixon whether he had made any investigation to see if the patient assumed the symptoms of the disease, or whether there were any marks of friction on the body; for he had never met with a case that lasted so long as four years, and any children he had seen with the disease in the same proportion as the patient exhibited were unable to walk.

DR. FOOT remarked that he had had the man in the Meath Hospital six years ago.

MR. COX, observing the connection of myxœdema with enlargement of the thyroid, was rather startled with the present prevalence of enlarged thyroid in whole or in part in the majority of anæmic young girls, and yet without any ocular or cardiac disturbance, and he accounted for it by the connection of the thyroid gland with menstruation. He had recently seen a curious case of chorea in a young boy, who, when the chorea subsided under the influence of rest, had a transition from what he might call muscular insanity to mental insanity—the boy was now quite an imbecile.

DR. GRAVES, referring to the influence of pressure in producing paralysis, mentioned that during a winter's work putting an iron bridge across the river at New Ross, three or four powerful, athletic men who were working under water got paralysed. Pushing an iron cylinder through fifty feet of mud, they came upon a rapid river below, and to get rid of the water a cap was put on the cylinder with a pressure of 60 lbs. to the square inch, and the men who went down to test the works came up with blackened nostrils.

DR. C. J. NIXON replied. Mr. Cox's observations as to the frequency of enlargement of the thyroid in anæmia corresponded with Mr Laycock's, who pointed out the close relation of the conditions of the thyroid gland to menstruation, either in excess or defect; and he presumed,

therefore, that in Mr. Cox's cases there was some defect in the menstrual process. As regards Mr. Doyle's inquiry, it was very difficult to say, beyond doubt, whether the patient was malingering or not, for chorea was an eminently functional disease. The case presented, typically, all the appearances found in fully-developed chorea. It was certain, apart from the man's miserable condition in hospital and the sleepless nights he got, that he could not feign the cachectic appearance which he presented, or the harsh dry skin which existed. There was nothing in the case to warrant the opinion that the disease was feigned. While Dr. Foot's observations accorded fully with what he had stated as to chorea being eminently a functional disease, yet it was not specially so, because it had a variety of causes. Organic affections had a variety of causes too. He concurred with Dr. Foot's remark as to the influence of medicine on chorea. Notwithstanding all that had been said of bromides, zinc salts, &c., no medicine seemed to have any influence on the course of the disease. Give the patient sufficient time, and if the case was of a certain character it would get well in spite of the physician. As regards diver's paralysis, the result of observation seemed to indicate that paralysis was not met with except when the diver passed to a depth below the surface of at least 90 feet.

Friday, April 5, 1889.

The PRESIDENT in the Chair.

The Prevalence, Causation, and Treatment of Acute Cardiac Affections.

MR. COX read a paper on the above subject, dealing especially with acute endo- and acute pericarditis. As to the varieties of these affections, he selected the idiopathic, the rheumatic, and the septic; and adduced examples, as they seemed to him, of each variety. As to frequency, he stated that he had recently met with so many cases of acute endocarditis that he had come to regard it as one of the most prevalent of acute constitutional diseases—more common possibly than, for instance, acute pleuritis or acute pneumonia. Whether the experience of others coincided with his he did not know; but if it were so he thought it pointed to a change in the form or type of disease, such as had undoubtedly occurred in some other diseases—such as, notably, with regard to the relative prevalence of typhus and typhoid fever.

This variation of type especially suggested itself in cases of what might be called, for want of a better name, cases of simple acute endocarditis—that is, cases of acute endocarditis of a mild character unassociated with arthritis; whether they were of the rheumatic or of the idiopathic variety he would not undertake to say. Certainly most of them seemed of rheumatic origin, but some appeared to be idiopathic.

and some few were clearly septic, in origin. The absence of joint-trouble was important in another sense, as rendering the attack liable to be overlooked, and also because of its suggestive bearing on the question of treatment; for manifestly, if joint-trouble were absent, drugs which influence that condition only, if such there be, would be inadmissible or unsuitable, if not injurious. The same statement would hold good with regard to the question of pyrexia; antipyretics, as such, should not be administered, where there was no need for them. Hence, for instance, quinine, salicin, salicylic acid or salicylate of sodium, might be not alone not beneficial, but distinctly injurious in cases even of rheumatic origin, where the joints were not engaged, or the temperature was not raised above the normal. And such cases are by no means uncommon.

As to the relative frequency of acute endocarditis and acute pericarditis of rheumatic origin, the author found himself in direct antagonism to the experience of such authorities as Stokes and Hayden. Both these great authorities have described acute pericarditis as being far more common than acute endocarditis; whilst the author finds the contrary condition to prevail—namely, that acute endocarditis is far more prevalent than acute pericarditis. Is this the general experience? If so, it points to a change of type in this respect also.

Again, Stokes and Hayden found the frequency and the severity of the heart affection in rheumatic fever to be in direct proportion to the severity of the joint-trouble, and to the elevation of the temperature above the normal. Mr. Cox, on the contrary, finds the heart affection to occur regardless of rise of temperature, being often unattended by pyrexia, and to be more often in indirect, rather than in direct, ratio to the joint-trouble.

Again, with regard to the curability of rheumatic heart affection, Mr. Cox finds himself justified in taking a more favourable view than that which Dr. Hayden has enunciated in his "*Magnum Opus*." Dr. Hayden laments that he found few cured, whilst Mr. Cox finds himself in accord with Fuller and others who record a large proportion of recoveries.

The author reported a considerable number of cases in support of his views—especially to prove that acute endocarditis bears no ratio to joint trouble or pyrexia in rheumatic fever. He also recorded at length a case of acute septic, typhoid, or so-called ulcerative endocarditis, which extended over a period of five weeks, being complicated with very severe gastro-enteritis, and terminating fatally, after two rallies that promised recovery. He also recorded a case of acute idiopathic pericarditis of great severity, which terminated within a fortnight by sudden crisis, ending in complete recovery. Another case of recent pericardial effusion, occurring in connection with pleural effusion, both following on injury and independent of arthritis, was adduced, in which the symptoms were held to simulate hepatic disease, and in which recovery took place; the

pleural effusion having been aspirated, and the pericardial effusion afterwards becoming completely absorbed under treatment. The causation of acute rheumatic endo- and pericarditis is the causation of rheumatic fever itself, and that Mr. Cox regards as essentially a *neurosis*—a disturbance of the trophic centre, or centres, which alike control heart and joints. By such means, and by such means alone, does he consider it possible to understand or to explain the many phenomena of the disease, above all its rapid *metastasis*, the sudden implication and recovery of joints. In the presence of trophic centres, presided over by a *dominant* centre, whether located in the medulla, in the pons, or in the floor of the fourth ventricle, do we find a sufficient and adequate explanation of such rapid disturbances of nutrition; and in the further presence of a thermo-taxic centre, situated alongside of the dominant trophic centre, we can see an intelligible cause for the sudden occurrence of such a formal and otherwise unintelligible complication as hyperpyrexia.

The presence of these centres also makes intelligible the beneficial action of blisters applied over swollen joints or over an affected heart—a beneficial action which Mr. Cox believes to be well established. As to the further question of treatment the author regards rest, continued as long, if possible, as the heart affection remains, as the primary and most valuable of all therapeutic measures. For the reduction of temperature, when necessary, he prefers quinine or antipyrin; for the relief of pain in rheumatic fever counter-irritation over the joints affected and internally salicylate of sodium, and, if necessary, opium or morphin. For the heart affection rest above all things; and next blistering again and again repeated; and internally perchloride of mercury and iodide of potassium, with digitalis or *nux vomica*, if need be. The perchloride and iodide he continues, in some cases for weeks or even months, sometimes giving them with pepsine or with iron, and has scarcely ever known them to disagree or do harm. The *tinctura ferri perchloridi*, in cases marked by great cardiac debility, he has found occasionally of great service; and oil of turpentine, safeguarded against strangury by spirit of nitrous ether, he has found at times distinctly beneficial—as it has been found beneficial in another form of serous inflammation—namely, iritis. Bleeding and crude mercury he believes to be injurious in endo- and pericarditis, and so also he regards, in apyrexial cases, salicin, salicylic acid, and salicylate of sodium.

DR. A. W. FOOT said that it was astonishing to hear that acute endo- and pericarditis were more common in Dublin than those most common diseases—bronchitis, phthisis, and pleuritis; and yet the number of cases which Mr. Cox brought forward was very small. Mr. Cox considered there was a relation between the tendency to cardiac affection and the height of temperature; but he (Dr. Foot) had not found that to be the case.

On the contrary, there was no relationship between cardiac complication and rheumatism, except that of age—namely, the younger the person the more liable he was to some form of cardiac complication. But they were entitled and naturally anxious to hear upon what Mr. Cox's diagnosis was based; for all turned upon that. The principal point, it seemed, consisted of murmurs emanating from two very suspicious orifices—the aortic outlet and the still more suspicious pulmonary outlet. Indeed, the latter was called “the area of romance,” from the phantasmal character of the murmurs originating and audible in that region. Myocarditis was spoken of as not of common occurrence. His own experience was that it was observed more as a *post mortem* than an *ante mortem* condition; for the diagnosis of myocarditis would be extremely difficult to make during life. Some anomalous phenomena, he suggested, might be accounted for by the toxic effects of the salicylic compounds; for instance, he had himself seen mutism and blindness resulting from overdoses of salicylic compounds. Next, as to treatment, Mr. Cox advocated blisters; but he (Dr. Foot) had found blisters a most disturbing mode of therapeutics to a clinical teacher. He never found blistering do any good, except in pericardial effusion; and in those cases it would be better to remove the serum with a cannula and trocar than by the slow method of a blister.

DR. C. J. NIXON said that on some points he thoroughly agreed with Mr. Cox—first, that endocarditis was more common than pericarditis; indeed, of late years pericarditis in the course of rheumatism was comparatively rare. Secondly, that the most severe forms of articular rheumatism are uncomplicated with inflammation of the endocardium or the pleura. And, thirdly, as to the very remarkable frequency of mitral valve disease, especially mitral regurgitation, in comparison with all other valvular affections of the heart. But, on the other hand, he was doubtful about certain other points put forward: for instance, that endocarditis was associated with a falling temperature. It would be too much to regard the existence of a murmur of the heart in the cardiac area as a sign of endocarditis. He believed murmurs were frequently present independently of any inflammation of the endocardium, and that they owed their origin in rheumatic fever to purely functional causes. Hence the mitral systolic murmur completely subsiding with returning strength. That applied to a murmur in the pulmonary area which had been described as the “region of romance” in cardiac pathology. It was not because of the uncertainty with regard to the locality of the murmur that it was called the “region of romance,” but because the murmur was met with under such a variety of conditions—*e.g.*, sexual excess, excessive smoking, forms of neurosis and rheumatism. One of the commonest things in acute rheumatism was a rough, grating systolic murmur of the heart over the pulmonary area, while it was a purely

functional murmur. Therefore, the point which he desired to advance was that where cardiac murmurs developed in the course of rheumatism with a subnormal temperature, the murmurs were not to be regarded as signs of endocarditis. The question of myocarditis must be eminently problematical. He did not know any sign that would enable the physician to say definitely there was myocarditis present. He was inclined to agree with Dr. Foot that it was very rare to have any case of rheumatic endocarditis with murmurs of the aortic area.

MR. COX replied that he had observed two or three cases of myocarditis which were marked by signs of collapse and cardiac failure. With regard to the relation of temperature to the heart affection, he drew the same conclusion as Dr. Foot himself—namely, that there was no relation between the temperature and the cardiac affection. As regards the toxic effects of salicylic compounds, for his part he eschewed those compounds. He gave salicylate of sodium merely for a few doses to ease the pains. The application of blisters was so valuable he was prepared to use it in spite of its disturbing influence; and it was gratifying that Dr. Nixon confirmed his opinion that endocarditis was more common than pericarditis, although Stokes and Hayden held to the contrary. With regard to murmurs, he did not regard these as a sign of endocarditis except on the theory that they were due to inflammation; nor did he speak of a murmur at the outlet of the aorta—only of a softening sound.

Trichomycosis Nodosa.

DR. R. G. PATTESON read a paper on trichomycosis nodosa, a bacillary disease of hair, which he demonstrated with diagrams and the exhibition of microscopic specimens:—

Twenty years ago Paxton described a diseased condition of the hairs of the axillæ, named afterwards, by Erasmus Wilson, *leptothrix*. A similar condition was found in the hairs of the scrotum, and though a parasitic origin was suspected none could be demonstrated. Behrend and Eberth found zoogloea masses of micrococci adherent to hairs and forming nodes, but a bacillary origin has not hitherto been demonstrated. The hairs present an abnormally dull and dry appearance, and feel rough and knotted. They are not unnaturally brittle, the outlying concretions which form the irregularities of the surface acting as splints to those weakened portions where the fibres are split or ruptured. The substance forming these nodes is very hard and insoluble, and can be scraped away only with much damage to the hair. It consists of a homogeneous or slightly granular material, embedded in which the bacilli lie. The bacilli are short fine rods with slightly rounded ends, about 2–3 times as long as they are broad, and about one-fourth the diameter of a red blood corpuscle in length. They stain readily in any of the aniline dyes; best by Gram's method. They are non-motile, are sometimes joined in twos or threes,

rarely forming longer filaments. Cultivations made in the laboratory of Trinity College, by kind permission of Dr. Purser, yielded negative results. Dr. Walter Smith furnished hairs from a similar case, and in them the presence of identical bacilli was easily demonstrated. It is probable they bear a causal relation to the disease. They are not found in the skin or hair follicles. The name "*trichomycosis nodosa*" had been adopted; the first term to indicate the bacterial origin of the disease, the second to indicate its most prominent characteristic, and the one which, when present, usually leads to its recognition.

DR. WALTER SMITH said Dr. Patteson's communication was to be welcomed as throwing new light on a minor, though not uninteresting class of affections. It was exactly fifty years since Schönlein made the first discovery in regard to the influence of fungi as a cause of producing disease of the skin and hair. Soon afterwards a parasite of ringworm was discovered. For a considerable time matters, from a histological point of view, seemed to have come to a standstill, and it was only possible by that important method of investigation to add much to the stock of knowledge. Dr. Patteson's discovery was a step in the light of modern research. Twelve years ago he himself obtained, from the axilla of a patient, hairs in which he recognised a condition corresponding to what had been described as *leptothrix*, scaly hair. Dr. Patteson's discovery tended to show that the invasion of bacilli might be one of the causes of the breaking up of hair. The difficulty, however, arose in dealing with such localities as the scrotum and axilla, which were hotbeds of bacilli, whether they were merely accidentally on the hair, *i.e.*, whether they invaded the substance, or were parasitic. Dr. Patteson seemed to show that there was a true invasion of the hair by those organisms.

SECTION OF PATHOLOGY.

President—J. MAGEE FINNY, M.D.

Sectional Secretary—J. B. STORY, F.R.C.S.I.

Friday, March 22, 1889.

The PRESIDENT in the Chair.

Report of Dr. Ninian Falkiner upon a Rhinolith.

MR. J. B. STORY (Secretary) read the report of Dr. Ninian Falkiner upon the Rhinolith exhibited at a former meeting by Dr. M'Weeney:—

100 centigrammes contained moisture	-	-	3.2 c.g.
"	"	organic matter	- 13.0 "
"	"	Lime (CaO)	- 44.4 "
"	"	Phosphoric anhydride (P ₂ O ₅)	38.4 "

Traces of sodium, chlorine, magnesium. The analysis nearly identical with one made by Romer of a similar calculus. The structure of the calculus was stratified, layers of dark and light colour round a central cavity.

DR. M'WEENEY referred to a case reported by Mr. Clutton in the Transactions of the Pathological Society of London, the chemical analysis of the rhinolith being almost identical with that of his own.

Pernicious Anæmia.

DR. GRAVES showed microscopic sections from cases of pernicious anæmia which had been stained by a modification of Weigert's process. He argued that by this process the health and vitality of the red blood cells could be ascertained, the healthy staining deeply and the worn out ones not staining at all. He also showed portions of liver and kidney stained with hydrochloric acid and ferro-cyanide of potassium, which gave a deep blue colour from the deposit of iron in the tissues. In one specimen he found bacteria, which he believed had reached the tissues from the diseased intestinal tract.

MR. BOYD said that though the disease might have a clinical it had not a pathological entity. The majority of pathologists had found in the gastro-intestinal tract sufficient evidence to class the disease not as a disease of the blood, but as a disease of blood destruction produced by the absorption from the gastro-intestinal tract of some poison. With regard to the presence of bacteria in the liver in Dr. Graves' case, some years ago during the formation of the Mont Cenis tunnel workmen died of some form of pernicious anæmia, and it was afterwards found that their gastro-intestinal tracts were filled with a form of parasite which was believed to have led to the blood destruction.

DR. EARL said his experience as to the staining of the blood corpuscles by Weigert's method did not at all accord with that of Dr. Graves. In some of his own preparations he found the large blood-vessels filled with corpuscles that did not stain at all, and then he came on other blood-vessels containing corpuscles that were always staining.

PROFESSOR PURSER said that as to the bacteria in the tissues, they occurred in only one of the cases which was confessedly putrid when put into the staining fluid; and there could not be the slightest doubt that they were the ordinary putrefactive bacteria, and had nothing to say to the disease. As to the staining, he entirely concurred with Dr. Earl. Weigert's method of staining objects was not at all a new method; and anyone who had ever examined sections stained in that way would see that the blood corpuscles were very different in appearance, and that some stained, and that others did not. Anyone who had the slightest experience of the examination of blood by means of ordinary agents would see that the blood corpuscles were not all of the same kind—that

some would yield up their colouring matter, whilst others would not; and what this difference depended on they did not know, although he believed it depended on the age of the corpuscles. When they were hardened in Müller's fluid, however, some would give up their colouring matter, while others would not. He thought it a very roundabout way of ascertaining whether they contained hæmoglobin to stain them with this complicated fluid. He believed that no dependence whatever could be placed on the method of staining blood corpuscles in this hardened state of preparation. He had had some experience of cases of pernicious anæmia, and some years ago he published cases in which the dark-coloured staining which had been seen so often in specimens from the liver and the kidneys was extremely well marked, and in those cases he examined the objects with ferro-cyanide of potassium and hydrochloric acid, and they gave a blue colour under the microscope. He thought, however, in Dr. Graves' specimens, that a quantity of iron must have got into them, for all the hæmoglobin in a patient's body would not supply iron enough to give such a colour as appeared in those specimens. He did not think Dr. Graves had proved the points he sought to make. One word as to what Mr. Boyd had said. He did not think that pernicious anæmia could be considered entirely as consisting of destruction of the blood corpuscles. The anatomical changes found in the blood in such cases, and the great variety in the size and shape of the corpuscles—some being very much larger, and containing a larger amount of colouring matter than the normal corpuscles did—showed that it must be more than mere destruction. He had no doubt that very extensive destruction of blood corpuscles did take place in this disease, as was proved by the iron-containing pigments found in the liver and kidneys, and also in the urine; but he thought that there must also be some complete alteration in the nature of the corpuscles—in fact, he thought the essence of the disease lay in a change in the nature of the corpuscles, and not in a destruction of them. The fault lay in the formation of an imperfect blood, which broke down.

THE PRESIDENT OF THE ACADEMY (Dr. Gordon) said it was worth consideration whether the air in the blood was owing to the pernicious anæmia, or was not more directly connected with the fatty degeneration that seemed to have existed in the case. Dr. Graves had mentioned to him that the muscular structure of the heart was largely saturated, so to speak, with fatty development. They knew that fatty development was one of the symptoms of the disease in question.

DR. GRAVES (in reply) said—He had no doubt that different hardening agents might so alter the object that no good result would be attained; but he would remind Dr. Earl that he had suggested that fresh blood should be used in the slides without any hardening agent. As to the bacteria, he did not suppose that they had anything at all to say to the

pernicious anæmia. He only mentioned them because he found them. It was quite possible that they might have got into the blood during the last few hours of life, or after death. He believed that they were the bacteria of putrefaction.

Sarcoma of the Chorioidea.

MR. ARTHUR BENSON read the notes of two cases of Chorioidal Sarcoma that had recently come under his care in St. Mark's Ophthalmic Hospital. Both were in women, aged respectively fifty and forty. The affected globes were in each case enucleated. In the first case the tumour was entirely intra-ocular, the tumour had given rise to a condition of secondary glaucoma, and the retina was completely detached. Microscopically, the growth was a spindle-celled pigmented sarcoma.

In the second case (sections of which were also exhibited) the growth had filled nearly the whole of the globe, and had besides extended through the sclerotic, forming a large orbital tumour attached to the globe. The microscopic sections showed the tumour to be a round-celled and very deeply-pigmented sarcoma, with so little binding tissue that it was difficult to get the section to hold together during the staining processes. It consisted almost wholly of deeply-pigmented cells. The history showed that the rate of growth of the extra-ocular portion of the tumour was about twenty times as great as that of the intra-ocular portion. The tumour cells seemed to pass out along the perforating vessels and through the optic nerve. The sclerotic, though much thinned, could everywhere be seen separating the intra- from the extra-ocular portions. The optic nerve was very much disorganised and pigmented.

DR. GRAVES said the two tumours in this case were widely different. One was a spindle-celled sarcoma without pigment, while the other was round-celled and had a great deal of pigment. These tumours generally seemed to pass out by the blood-vessels; but in the present case they passed along the optic nerve.

Tumour of the Pons.

The PRESIDENT OF THE ACADEMY having taken the chair,

The PRESIDENT exhibited a tumour the size of a large marble, of a fibro-gliomatous nature, which occupied a very considerable portion of the pons, though principally situated in its left half and posterior part. [A full description of it will be found at page 380.]

Presentation of Specimens.

DR. BIRMINGHAM submitted a specimen of Angular Curvature of the Spine from Caries; and also a case of a Hair-pin found in the Bladder of a Female.

Gastric Ulcer with Perforation and Acute Peritonitis.

MR. M. A. BOYD exhibited a stomach showing acute perforation from gastric ulcer. The patient was admitted to the Mater Misericordiæ Hospital with symptoms of acute peritonitis, and died in some hours after admission. On opening the abdominal cavity, a circular rent, about the size of a sixpence, was visible on the anterior surface of the stomach, a quarter of an inch above the attachment of the great omentum, and midway between the cardiae and pylorus and slightly over-lapped by left lobe of liver, which did not quite prop it up. In the opening some half-digested fragments of egg were found, and other portions of the same material were found scattered through the peritoneal cavity. The coils of intestine were adhering by soft, lymph exudation, were of a bright pink colour, and, when raised, showed here and there beneath them small purulent collections. The peritoneal cavity contained about a quart of flaky serum. The interior of stomach showed a large ulcer, or rather excavation, about two and a half inches long by two inches broad, extending from its posterior surface across greater curvature and up anterior wall to the site of the rupture. The pancreas, which was adhering, formed its floor, and was deeply excavated, as if digested by the gastric juice. The stomach was hour-glass in shape, from the contracted margins of the ulcer, which showed intense venous enlargement. Mr. Boyd alluded to this venous thrombosis of some portion of the gastric mucosa as the starting point of the necrotic process.

THYMUS GLAND.

THE literature of the thymus gland is scanty, and Dr. Jacobi's paper on the "Pathology of the Thymus Gland" is an acceptable addition. From it we abstract the following:—"He found that tuberculosis of the thymus is not rare, and syphilis is found in it in two forms—gummata and connective tissue disease. The gland is very liable to absorption from pressure. In diphtheria he found no characteristic changes in it."—*Transactions of the Association of American Physicians. Medical News*, Vol. LIII, No. 16.

ETHER AS A DIURETIC.

IN a case of fatty heart, with dropsy, albuminuria, swelling of the liver, severe dyspnœa, and continual sleeplessness, with irregular heart action, Dr. Bamberger recommended the patient to undergo the Oertel "cure" in the mountains. The dyspnœa, however, increased to such a degree that the attending physician had recourse to injections of ether with a Pravaz's syringe. The effect was most satisfactory. The dyspnœa was relieved, and a great increase in the amount of the urine soon got rid of the dropsy.—*British Medical Journal*.

CLINICAL RECORDS.

*A Case of Lymphadenoma, with Remarks.** BY GARRET JOYCE.

THE disease of which I wish to present an example was described by Dr. Hodgkin in 1832, before the Medico-Chirurgical Society (*Med. Chirurg. Transactions*, Vol. XVII.). In his paper Dr. Hodgkin describes the condition which he found in a number of *post-mortem* examinations, but he does not give any detailed account of the course of the disease. He found enlarged lymphatic glands in the neck, along the aorta and the bronchi, in the posterior mediastinum, and in the mesentery. The spleen he found to be enlarged in all cases except one. The enlarged glandular structures had no signs of inflammation.

The following is the history of a case which recently came under my notice:—

CASE.—Mary A., aged seventeen, laundress, was admitted to the Mater Misericordiæ Hospital on the 17th of January, 1889, suffering from enlarged lymphatic glands, distributed as follows:—In the parotid region, one large gland; submaxillary region, right and left ditto; chain of enlarged glands over the right clavicle; one gland enlarged in left axilla, another of smaller size in the right axilla; a small enlarged gland over the manubrium. This last did not appear at first when she came in, and when enlarged was the only gland that was painful on pressure. The patient complained of some cough, and was anæmic, though not strikingly so. Otherwise she was perfectly healthy. She was found to have roughness of breathing over the larger bronchi. Her spleen was considerably enlarged. She had a very quick pulse (120), and it continued so during her stay in hospital.

She gave a history as follows:—Her mother died of phthisis. Three years ago she suffered from an attack of measles. About a month after her recovery she noticed one enlarged gland in the submaxillary region (right side), and this grew in size steadily, without implicating any other glands until last summer, when she got a cold, and the glands over the right clavicle commenced to increase in bulk. Last Christmas the gland in the parotid region and that in the left axilla commenced to be infected. The former has now assumed considerable dimensions. The gland in the interclavicular notch she noticed only when in hospital. It caused her some slight pain.

The case was diagnosticated as lymphadenoma, or Hodgkin's disease.

* Read before the Carmichael College Medical Science Association. Feb., 1889.

She got a mixture for the cough, which continued troublesome, although she was slightly improved. The anæmia was readily got under by iron. She was now put on a course of arsenic. Commencing with doses of 4 mins. of Fowler's solution three times a day, this was gradually increased until she was taking three times that amount. This appeared not to have the smallest influence on the enlarged glands. She remained in hospital without any change, except that she grew weaker, until the 16th of February, when she left the hospital for the country, in the hope that change of air might do some good. But from the beginning her course was a downward one, and probably two or three months will be the longest time she can live. There was never any well-marked pyrexia while under treatment. I have not learned anything of her history since she went away.

The next case of the same disease to which I wish to draw attention is one which I did not see. I would not speak of it at all, only that, having a portrait of the patient, and the disease being a rare one, I thought it worth speaking about. The patient, also a woman, was aged twenty-eight, and was perfectly healthy. She was married eleven years, and was the mother of four fine, strong children. A year previous to entering the hospital, when in perfect health, she noticed a small tumour over the right clavicle, and soon afterwards the glands on both sides of the neck commenced to grow, and a month later the glands in the left axilla showed signs of growth. These glands slowly advanced in size. There was no anæmia. She was sent home and died two months afterwards, the immediate cause of death being some pulmonary complication. I am indebted to Dr. Coppinger for a portrait of this patient, and for the clinical history. He has seen a number of these cases.

The lymphatic glands are liable to become enlarged, as in the diseases known as lympho-sarcoma, lymphoma, and lymphadenoma. Lympho-sarcoma, like all sarcomata, is rapid in growth, and involves other structures than the neighbouring glands. It does not particularly bear on our present subject.

A lymphoma is an enlarged gland without any sign of inflammation in it, and it does not tend to infect other glands—at least, it does so only in its own immediate vicinity. A lymphoma and an ordinary enlarged gland in lymphadenoma are precisely similar in histological structure. The history of a number of cases would tend to show that the primary enlarged gland is malignant, or lymphadenomatous, sometimes from the beginning, as in very rapid cases; and sometimes, as in the case I have now brought forward, the primary gland was for two years and a half a simple lymphoma, and then its character suddenly changed. It is impossible, in the present state of our knowledge, to predict, in case of an enlarged gland, whether or not it is ultimately to end in Hodgkin's disease. Hence one of the reasons for excising enlarged glands.

In two-thirds of the cases no cause can be traced to account for the disease. It is three times more common in males than in females, and adult life generally is the time it appears. Roberts says that it may be associated with a scrofulous diathesis. The glands tend to enlarge in the following order:—First, in the cervical region; then in the axilla; next in the inguinal region; and, lastly, the bronchial and other glands. Trousseau mentions, however, a case in which a man got an enlarged gland in the *inguinal region* after a chancre, and it ultimately ended in general infection of the other glands of the body. Dr. Wilks mentions also how a patient died in a very debilitated state, and the *post-mortem* examination showed that the internal lymphatic glands were enlarged without any superficial glands being affected. It would appear that the disease commenced within the trunk, and had not time to spread externally. These results would tend to show that the disease does not invariably run the above course.

The amount of mischief done by the enlarged glands depends, of course, on their situation. They may press on the œsophagus or trachea, or on various nerves or arteries, leading to different symptoms. According to Gower, one of the greatest authorities on the disease ("Quain's Dictionary of Medicine"), the longer the glands are enlarged the harder they get, this not being the normal condition in enlarged scrofulous glands, which tend to soften and undergo degeneration. Caseation is exceedingly rarely found, and when it is present it occurs in only one or two glands out of the whole number enlarged. In the beginning the enlarged glands are quite separate, but soon they perforate their capsules and join together. Gower also says that the glands in Hodgkin's disease may be either hard or soft from the outset. In the hard variety there is an immense increase of fibrous tissue, and in the soft the cellular elements only of the gland are increased. It is also worthy of notice that when the glands are hard there is simple anæmia, and when soft there is an increase of the white blood corpuscles. However, this probably now would be shown to be true leucocythæmia. But in an ordinary case of lymphadenoma all authorities agree that leucocythæmia is rather the exception than the rule. Hilton Fagge is of the same opinion, and he holds that when it does occur it is because the disease is accompanied by splenic leucocythæmia.

The spleen is enlarged in most cases. This may be the result of simple increase of the spleen pulp, or may be due to the presence of growths. These growths originate in the Malpighian bodies. They are firmer than the spleen tissue, and, according to Green, not encapsuled. The liver, kidneys, &c., may have similar growths. They are similar in structure to lymphomata.

When a lymphatic gland enlarges it may either disappear, it may caseate, it may remain stationary for an indefinite period, or it may be

the nucleus of infection to the other glands of the body. The course of the disease would suggest that an enlarged lymphatic gland, after being in this condition for a variable time, is capable of undergoing some obscure change, which results in the development of some product capable of infecting other glands. As the disease generally advances from gland to gland, it is likely that this product is circulated through the lymphatic channels. However, it is well known that in some cases the glands may grow simultaneously in parts of the body quite apart. This might be explained by supposing that though the lymph channels were the more usual paths for the infection to travel by, still the blood-vessels acted sometimes similarly, leading to a more general and sudden enlargement.

In Hilton Fagge's "Principles and Practice of Medicine" (Vol. II., p. 337), a case is mentioned of a man who was indisposed for one month before he came under the author's notice, when he was admitted into hospital. The spleen was increased in size, but no lymphatic enlargement was discovered. On the seventh day in hospital Dr. Fagge noticed that the cervical glands were enlarged and tender, and it was then discovered that the other lymphatic glands were enlarged, but not tender. The man died two days afterwards. I think it would be scarcely possible for all the lymphatics to become infected through the lymphatic channels in seven days. Possibly there was, in the first instance in this case, some internal gland enlarged, which could not have been discovered when he came into hospital, and which was the cause of the general infection through the blood. Bristowe says that not only do the lymphatic glands, in this disease, become hypertrophied, but that all adenoid tissue in the body tends to undergo a similar change. There are never any new growths, but only an increase in bulk of tissue already existing. Hence the term "malignant" cannot be applied to it, properly speaking. At page 62 of the sixth edition of his work on "The Theory and Practice of Medicine," he gives a drawing showing the infiltration of muscle by the overgrowth of the adenoid tissue.

No observer, as far as I know, has ever seen a strumous gland terminate as lymphadenoma. They always end either by softening and opening externally, or by drying up and calcifying. And, on the other hand, no writer that I have consulted has found that the primary infecting gland in the same disease was caseous. Hence I am inclined to suppose that caseation in an enlarged gland—though the caseous portion may be only a small part of the entire gland—prevents the malignant change taking place that leads to Hodgkin's disease.

It is true that Gower found one or two glands caseous, but he does not mention they were the primary ones affected; so I presume they were not so.

It seems probable that the mere presence of tubercle in an enlarged

gland has some restraining influence on the development of malignancy. Treves says that he has removed masses of hard enlarged glands, which showed no signs of inflammation and remained stationary for years, and which certainly ought to have developed a virulent character if not kept in check by something. These proved to have tubercles in their centre, but no caseation was visible to the naked eye.

A number of remarkable cases are mentioned in Fagge's "Medicine" (Vol. II., page 340). In several cases noted there all the lymphatic glands were simultaneously affected by tubercle, and commenced to grow slowly. In all these cases the spleen was afterwards found to contain tubercles, and the lymphatics were all in a similar condition, and sometimes even caseous and soft. Now, this was not Hodgkin's disease. The course of the disease in these cases was not at all like that in lymphadenoma, and the infected glands in both cases were different in structure. They were simply glands which became enlarged, not from lymphadenoma, but from tubercular disease.

I do not intend to discuss the pathological similarities and differences between lymphadenoma and leucocythæmia; but I may quote Bristowe, who says that, although the "two diseases present similarities, they are essentially different, and in lymphadenoma, as in many other conditions associated with anæmia, the white corpuscles become somewhat increased, but not to anything like the same extent as in leucocythæmia." Hence the confusion that existed up to a short time ago about the two diseases.

As to the treatment of this obscure disease, I may mention that arsenic is the only drug that has any chance of doing good. In some few cases it appears to have succeeded thoroughly, but, unfortunately, in the vast majority it has most signally failed.

OERTEL'S "TERRAIN-KUR."

IN the discussion on the Oertel treatment of heart disease at the Wiesbaden Medical Congress, von Ziemssen said that in 1868, during a stay in Dublin, he stood with Stokes before his hotel and admired a passing horse. Stokes said that the heart of the rider was far more interesting than the horse. The rider was a patient of his with aortic regurgitation, and rode energetically daily; he also walked after his carriage, holding on to the back of it. Stokes then expounded his theory, which corresponded in the main to Oertel's "Terrain-Kur." He also showed a field-labourer with the same kind of heart disease, who had benefited by ploughing. The latter died shortly afterwards of rheumatic pericarditis, and his heart weighed 4·4 lbs. Thus Stokes treated not only fatty heart but valvular failure gymnastically.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. MOORE, B.A., M.D., Univ. Dubl.; F.K.Q.C.P.
F. R. Met. Soc.; Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

VITAL STATISTICS

For four Weeks ending Saturday, March 23, 1889.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

TOWNS	Weeks ending				TOWNS	Weeks ending			
	Mar. 2.	Mar. 9.	Mar. 16.	Mar. 23.		Mar. 2.	Mar. 9.	Mar. 16.	Mar. 23.
Armagh -	5.2	5.2	15.5	25.8	Limerick -	32.4	32.4	28.3	24.3
Belfast -	25.0	27.9	27.2	25.0	Lisburn -	19.3	29.0	19.3	14.5
Cork -	24.0	33.1	29.9	17.5	Londonderry	37.4	30.3	10.7	17.8
Drogheda	25.4	12.7	42.3	42.3	Lurgan -	51.3	25.7	5.1	41.0
Dublin -	24.5	32.3	26.0	25.7	Newry -	7.0	28.1	21.1	10.5
Dundalk -	21.8	8.7	34.9	17.5	Sligo -	19.2	19.2	19.2	28.9
Galway -	23.5	40.3	13.4	43.7	Waterford -	32.4	41.7	25.5	23.2
Kilkenny	21.1	12.7	38.1	42.3	Wexford -	4.3	21.4	8.6	12.8

In the week ending Saturday, March 2, 1889, the mortality in twenty-eight large English towns, including London (in which the rate was 17.6), was equal to an average annual death-rate of 19.7 per 1,000 persons living. The average rate for eight principal towns of Scotland was 22.3 per 1,000. In Glasgow the rate was 27.8, and in Edinburgh it was 18.7.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 24.9 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2.7 per 1,000, the rates varying from 0.0 in eight of the districts to 10.7 in Londonderry. The 21 deaths from all causes registered in that district comprise 4 from measles and 2 from diarrhoea. Among the 110 deaths from all causes registered in Belfast are 1 from scarlatina, 1 from whooping-cough, 3 from diphtheria, 1 from

simple continued fever, 7 from enteric fever, and 1 from diarrhoea. The 37 deaths in Cork comprise 1 from scarlatina, 3 from whooping-cough, and 1 from diarrhoea. The 24 deaths in Limerick comprise 3 from scarlatina and 1 from whooping-cough.

In the Dublin Registration District the births registered during the week amounted to 199—98 boys and 101 girls; and the deaths to 172—87 males and 85 females.

The deaths, which were 49 below the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 25·4 in every 1,000 of the estimated population. Omitting the deaths (6 in number) of persons admitted into public institutions from localities outside the district, the rate was 24·5 per 1,000. During the first nine weeks of the current year the death-rate averaged 28·7, and was 5·8 below the mean rate in the corresponding period of the ten years 1879–88.

Only 15 deaths from zymotic diseases were registered, being 13 below the average for the corresponding week of the last ten years, and 4 under the number for the week ended February 23. They comprise 2 from measles, 1 from typhus, 4 from whooping-cough, 7 from enteric fever, &c.

Eleven cases of enteric fever were admitted to hospital, being equal to the admissions for the preceding week. Eleven enteric fever patients were discharged, 3 died, and 44 remained under treatment on Saturday, being 3 under the number in hospital on Saturday, February 23.

Seven cases of scarlatina and 2 of typhus were admitted to hospital against 3 cases of each of these diseases admitted during the preceding week: 34 cases of scarlatina and 10 of typhus remained under treatment in hospital on Saturday.

The hospital admissions for the week include also 9 cases of measles: 24 cases of that disease remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered is 34, being 21 below the average for the corresponding week of the last ten years, and 9 under the number for the week ended February 23. The 34 deaths comprise 21 from bronchitis and 5 from pneumonia or inflammation of the lungs.

In the week ending Saturday, March 9, the mortality in twenty-eight large English towns, including London (in which the rate was 19·6), was equal to an average annual death-rate of 21·0 per 1,000 persons living. The average rate for eight principal towns of Scotland was 23·5 per 1,000. In Glasgow the rate was 28·0, and in Edinburgh it was 23·2.

The average annual death-rate in the sixteen principal town districts of Ireland was 29·9 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts

were equal to an annual rate of 2·4 per 1,000, the rates varying from 0·0 in nine of the districts to 9·6 in Sligo. The 4 deaths from all causes registered in that district comprise 2 from diarrhœa. Among the 123 deaths from all causes registered in Belfast are 1 from typhus, 2 from simple continued fever, 4 from enteric fever, and 2 from diarrhœa. The 51 deaths in Cork comprise 4 from whooping-cough, 2 from diphtheria, 1 from enteric fever, and 2 from diarrhœa. The 17 deaths in Londonderry comprise 2 from measles and 1 from enteric fever.

In the Dublin Registration District the births registered during the week amounted to 191—99 boys and 92 girls; and the deaths to 226—110 males and 116 females.

The deaths, which are 3 below the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 33·4 in every 1,000 of the estimated population. Omitting the deaths (7 in number) of persons admitted into public institutions from localities outside the district, the rate was 32·3 per 1,000. During the first ten weeks of the current year the death-rate averaged 29·2, and was 5·3 below the mean rate in the corresponding period of the ten years 1879—88.

Twenty-three deaths from zymotic diseases were registered during the week, being 8 in excess of the low number for the preceding week, but 6 under the average for the tenth week of the last ten years. They comprise 3 from measles, 1 from scarlet fever (scarlatina), 1 from typhus, 1 from whooping-cough, 9 from enteric fever, 3 from erysipelas, &c.

Only 6 cases of enteric fever were admitted to hospital, against 11 admissions for each of the two weeks preceding. Six enteric fever patients were discharged during the week, 2 died, and 42 remained under treatment on Saturday, being 2 under the number in hospital on Saturday, March 2.

Five cases of typhus and 3 of scarlatina were admitted to hospital, against 2 cases of the former and 7 of the latter disease admitted during the preceding week. Twelve cases of typhus and 30 of scarlatina remained under treatment in hospital on Saturday.

The hospital admissions for the week include also 8 cases of measles: 23 cases of that disease remained under treatment in hospital on Saturday.

Forty-six deaths from diseases of the respiratory system were registered, being 12 over the number for the preceding week, but 10 below the average for the tenth week of the last ten years. They comprise 31 from bronchitis, 9 from pneumonia or inflammation of the lungs, and 2 from croup.

In the week ending Saturday, March 16, the mortality in twenty-eight large English towns, including London (in which the rate was 19·7), was equal to an average annual death-rate of 21·3 per 1,000

persons living. The average rate for eight principal towns of Scotland was 25·4 per 1,000. In Glasgow the rate was 32·4, and in Edinburgh it was 19·7.

The average annual death-rate represented by the deaths registered last week in the sixteen principal town districts of Ireland was 25·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·6 per 1,000, the rates varying from 0·0 in ten of the districts to 8·7 in Dundalk—the 8 deaths from all causes registered in that district comprising 2 from scarlatina. Among the 120 deaths from all causes registered in Belfast are 1 from diphtheria, 1 from enteric fever, and 2 from diarrhoea. The 46 deaths in Cork comprise 4 from whooping-cough. Among the 21 deaths in Limerick are 4 from scarlatina, and the 10 deaths in Drogheda comprise 1 from whooping-cough and 1 from simple continued fever.

In the Dublin Registration District the births registered during the week amounted to 206—103 boys and 103 girls; and the deaths to 181—81 males and 100 females.

The deaths, which are 39 below the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 26·7 in every 1,000 of the estimated population. Omitting the deaths (5 in number) of persons admitted into public institutions from localities outside the district, the rate was 26·0 per 1,000. During the first eleven weeks of the current year the death-rate averaged 28·9, and was 5·4 below the mean rate in the corresponding period of the ten years 1879–88.

Only 13 deaths from zymotic diseases were registered during this week, being 13 below the average for the corresponding week of the last ten years, and 10 under the number for the week ended March 9. They comprise 3 from measles, 1 from scarlet fever (scarlatina), 1 from typhus, 2 from whooping-cough, 3 from enteric fever, &c.

Ten cases of enteric fever were admitted to hospital, being 4 in excess of the admissions for the preceding week, but 1 under the number for the week ended March 2. Thirteen enteric fever patients were discharged, and 39 remained under treatment on Saturday, being 3 under the number in hospital at the close of the preceding week.

Three cases of scarlatina and 2 of typhus were admitted to hospital. In the preceding week 3 cases of the former and 5 of the latter disease were admitted: 30 cases of scarlatina and 10 of typhus remained under treatment in hospital on Saturday.

Nine cases of measles were admitted to hospital, against 8 for the preceding week: 25 cases of the disease remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered is 45, being 1 under the number for the preceding week, and 7 below the

average for the eleventh week of the last ten years. The 45 deaths comprise 32 from bronchitis and 9 from pneumonia or inflammation of the lungs.

In the week ending Saturday, March 23, the mortality in twenty-eight large English towns, including London (in which the rate was 18·6), was equal to an average annual death-rate of 20·8 per 1,000 persons living. The average rate for eight principal towns of Scotland was 23·4 per 1,000. In Glasgow the rate was 30·0, and in Edinburgh it was 17·8.

The average annual death-rate in the sixteen principal town districts of Ireland was 24·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·7 per 1,000, the rates varying from 0·0 in eight of the districts to 10·3 in Lurgan. The 8 deaths from all causes registered in the last-named district comprise 1 from measles and 1 from diarrhoea. Among the 110 deaths from all causes registered in Belfast are 1 from diphtheria, 5 from "simple continued" fever, and 3 from diarrhoea. The 27 deaths in Cork comprise 1 each from scarlatina, whooping-cough, and enteric fever. Among the 10 deaths in Kilkenny are 2 from enteric fever, and the 6 deaths in Sligo comprise 2 from typhus.

In the Dublin Registration District the births registered during the week amounted to 224—107 boys and 117 girls; and the deaths to 178—83 males and 95 females.

The deaths, which are 49 below the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 26·3 in every 1,000 of the estimated population. Omitting the deaths (4 in number) of persons admitted into public institutions from localities outside the district, the rate was 25·7 per 1,000. During the first twelve weeks of the current year the death-rate averaged 28·7, and was 5·6 below the mean rate in the corresponding period of the ten years, 1879–88.

Only nine deaths from zymotic diseases were registered, being 4 under the low number for the preceding week, and 22 below the average for the 12th week of the last ten years. They comprise 1 from measles, 1 from scarlet fever (scarlatina), 1 from typhus, 1 from whooping-cough, 2 from enteric fever, 1 from diarrhoea, 1 from dysentery, &c.

The number of cases of enteric fever admitted to hospital during the week is 7, being a decline of 3 as compared with the admissions for the preceding week. Six enteric fever patients were discharged, and 40 remained under treatment on Saturday, being 1 over the number in hospital on Saturday, March 16.

Four cases of scarlatina and 1 of typhus were admitted to hospital against 3 cases of the former and 2 of the latter disease admitted during

the preceding week. Twenty-eight cases of scarlatina and 7 of typhus remained under treatment in hospital on Saturday.

Ten cases of measles were admitted to hospital, being one in excess of the admissions for the week ended March 16. Twenty-six cases of the disease remained under treatment in hospital on Saturday.

Deaths from diseases of the respiratory system fell from 45 in the week ended March 16 to 34 in this week. This number is 19 below the average for the corresponding week of the last ten years. Twenty-two of the 34 deaths were from bronchitis and 6 from pneumonia or inflammation of the lungs.

METEOROLOGY.

*Abstract of Observations made in the City of Dublin, Lat. 53° 20' N.
Long. 6° 15' W., for the Month of March, 1889.*

Mean Height of Barometer,	-	-	29.999 inches.
Maximal Height of Barometer (on 15th, at 9 p.m.),			30.546 „
Minimal Height of Barometer (on 19th, at 9 p.m.),			28.944 „
Mean Dry-bulb Temperature,	-	-	43.3°.
Mean Wet-bulb Temperature,	-	-	40.8°.
Mean Dew-point Temperature,	-	-	37.8°.
Mean Elastic Force (Tension) of Aqueous Vapour,	-		.231 inch.
Mean Humidity,	-	-	81.4 per cent.
Highest Temperature in Shade (on 28th),	-	-	58.3°.
Lowest Temperature in Shade (on 3rd),	-	-	31.0°.
Lowest Temperature on Grass (Radiation) (on 27th),			24.2°
Mean Amount of Cloud,	-	-	67.1 per cent.
Rainfall (on 17 days),	-	-	1.076 inches.
Greatest Daily Rainfall (on 19th),	-	-	.381 inch.
General Directions of Wind,	-	-	N.W., W.

Remarks.

This was a tolerably favourable month. North-westerly winds preponderated as in February, and while the barometer was often high off the W. and S.W. of Ireland, atmospherical depressions passed south-eastwards across Scandinavia and the North Sea, producing cold N.W. winds and frequent showers. The beginning of the month was cold, but some genial weather was experienced from time to time.

In Dublin the mean temperature (44.0°) was above the average (43.3°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 43.3°. In the twenty-four years ending with 1888, March was coldest in 1867 and 1883 (M. T. = 39.0°) and warmest in 1868 (M. T. = 47.3°). In 1876, the M. T. was 41.1°, in the year 1879 (the cold year), it was 42.5°, in 1888 it was as low as 39.8°. As a general rule, February in Dublin is

only a shade colder than March. This is due to the fact that the Continental anticyclone embraces the British Isles and Scandinavia in March, causing easterly winds. In the present year, however, February was 3·7° colder than March.

The mean height of the barometer was 29·999 inches, or 0·076 inch above the average value for March—namely, 29·923 inches. The mercury rose to 30·546 inches at 9 p.m. of the 15th, and fell to 28·944 inches at 9 p.m. of the 19th. The observed range of atmospherical pressure was, therefore, as much as 1·602 inches—that is, more than an inch and a half. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 43·3°, or 3·7° above the value for February, 1889; that calculated by Kaemtz's formula—viz., $\text{min.} + (\text{max.} - \text{min.} \times \cdot 41) = \text{Mean Temp.}$ —from the means of the daily maxima and minima was 43·0°, or 0·3° above the average mean temperature for March, calculated in the same way, in the twenty years, 1865–84, inclusive (42·7°). The arithmetical mean of the maximal and minimal readings was 44·0°, compared with a twenty-three years' average of 43·3°. On the 28th, the thermometer in the screen rose to 58·3°—wind, W.S.W.; on the 3rd, the temperature fell to 31·0°—wind, S.E. The minimum on the grass was 24·2° on the 27th. The rainfall was only 1·076 inches, distributed, however, over 17 days. The average rainfall for March in the twenty-three years, 1865–87, inclusive, was 2·030 inches, and the average number of rainy days was 16·4. The rainfall, therefore, was much below the average, while the rainy days were slightly above the average. In 1867 the rainfall in March was very large—4·972 inches on 22 days; in 1888, 3·753 inches fell on 18 days; in 1866 also 3·629 inches fell on 21 days. On the other hand, in 1871, only ·815 of an inch was measured on 12 days; and in 1874 only ·953 inch fell, also on 12 days. In 1887 (the “dry year”), 1·485 inches of rain fell on 15 days. A solar halo appeared on the 6th. The atmosphere was foggy on the 1st, 2nd, 15th, and 27th. High winds were noted on 9 days, reaching the force of a gale on 4 days—the 20th, 23rd, 24th, and the 25th. Snow or sleet occurred on the 1st and 2nd; and hail fell on the 1st, 2nd, 8th, 21st, and 31st. The temperature exceeded 50° in the screen on 16 days, compared with 8 days in February, and the same number of days in January; while it fell to or below 32° in the screen on 5 days, compared with only 4 in February and only 3 in January, but with 11 in March, 1888. The minima on the grass were 32°, or less, on 14 nights, compared with 21 nights in February and 16 nights in January. On 2 days the thermometer did not rise to 40° in the screen.

The month opened with very severe weather. At 8 a.m. of Saturday, the 2nd, the thermometer stood at 20° at Aberdeen, and 22° at Parsonstown. The reading in Dublin at this time was 32°.

The weather of the week ending Saturday, the 9th, was very changeable and for the most part cold. At the beginning a keen S.E. wind blew, with hazy, dry weather. On Monday, the 4th, a close drizzling rain prevailed, while temperature did not exceed $40\cdot1^{\circ}$. The two following days were chiefly fine and much milder, the thermometer reaching a maximum of $50\cdot4^{\circ}$ on Wednesday. On this day the barometer gave way decidedly, and next morning two areas of low pressure were found—one off the north of Scotland, the other over St. George's Channel. The latter system caused the wind to shift to N.E. and N. on Thursday, with dull, cool weather in Ireland. Friday, the 8th, was cloudy but fine—a canopy of cirro-stratus moving from S.W. in an upper current, while the surface wind remained northerly. Saturday was bright, with some passing showers in the afternoon. In Great Britain very severe weather was experienced during the week. At first some intense frosts occurred over a snow-covered country—thus, the thermometer in the screen sank on Sunday to 14° at Cambridge, on Monday to 15° at Shields, and on Tuesday to 10° at Aberdeen. Afterwards, on Thursday and Friday, the depression above mentioned caused drenching rains or heavy falls of sleet and snow in England. In Dublin the mean height of the barometer was $29\cdot708$ inches—pressure ranging from $30\cdot015$ inches at 9 p.m. of Tuesday (wind, W.S.W.) to $29\cdot369$ inches at 9 p.m. of Friday (wind, N.N.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was $39\cdot0^{\circ}$. The arithmetical mean of the highest and lowest daily temperature was $39\cdot8^{\circ}$. Temperature in the screen rose to $50\cdot4^{\circ}$ on Wednesday (wind, S.W.), having fallen to $31\cdot0^{\circ}$ on Sunday (wind, S.E.). The rainfall amounted to $\cdot103$ inch, and was distributed over four days. The largest daily precipitation was $\cdot047$ inch on Monday.

Very favourable weather was experienced during the second week (10th to the 16th, inclusive), particularly in Ireland, where temperature was high and the air mild after Monday, the 11th. On this day an area of high atmospherical pressure showed itself over Ireland, and this system held for several days, producing dry weather and N.W. winds. On Wednesday an area of low pressure passed southeastwards across the S. of Scandinavia and Denmark, causing snow and frost in those countries and low temperatures with cold showers in Great Britain also. At the close of the week the barometer was giving way in Ireland, where the wind backed towards W. with rising temperature and increasing cloud. In Dublin the mean height of the barometer was $30\cdot314$ inches, pressure increasing from $29\cdot765$ inches at 9 a.m. of Sunday (wind, W.) to $30\cdot546$ inches at 9 p.m. of Friday (wind, S.S.E.). The mean temperature was $46\cdot3^{\circ}$, or $6\cdot5^{\circ}$ above the value for the previous week. The highest reading of the screened thermometers was $57\cdot7^{\circ}$ on Wednesday (wind, N.W.); the lowest was $31\cdot7^{\circ}$ on Monday (wind, W.N.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was $45\cdot3^{\circ}$. Only a few light showers

fell during the week, yielding $\cdot 020$ inch of water. Of this quantity $\cdot 010$ inch was measured on Monday and the same amount on Thursday. Except on Sunday and Wednesday, the percentage of cloud was high. Friday night was very cold in the S.E. of England, and severe frosts prevailed in Germany and France on Saturday—at Munich the temperature at 8 a.m. was only 13° .

The chief feature in the weather-record of the third week was the passage across the British Islands of a very deep depression in the interval between Monday, the 18th, and Thursday, the 21st. At the beginning of the week the barometer was high and the weather was fine. During Sunday and Monday a great and uniform reduction of pressure took place, the wind backed to S.W. and S. with light showers and rising temperature. On Tuesday a well-marked depression, which hourly grew deeper, spread eastwards across Ireland and the Irish Sea to the North of England, where the barometer fell below 28.80 inches on Wednesday morning. By this time the wind had shifted to N. and N.E. in Ireland, and rose to a fresh or strong gale. The depression now changed its course, travelling southwards to France, where it "filled up" on Friday. A great deal of cold rain, wet snow, and hail fell in Great Britain in connection with this disturbance. During Friday and Saturday the wind once more backed to W.S.W., and freshened with a rainy appearance and higher temperature. In Dublin the mean height of the barometer was 29.746 inches—pressure decreasing from 30.264 inches at 9 a.m. of Sunday (wind, W.N.W.) to 28.944 inches at 9 p.m. of Tuesday (wind, W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 43.6° , while the mean of the daily highest and lowest readings was 43.8° . Temperature rose to 53.0° in the screen on Saturday (wind, W.S.W.), having fallen to 32.9° on Friday (wind, W.). Rain was measured on three days—the total precipitation amounting to $\cdot 671$ inch, of which $\cdot 221$ inch was caught on Monday, and $\cdot 381$ inch on Tuesday. A little hail fell on Thursday morning.

Fresh N.W. winds, cloudy skies, and chiefly mild weather characterised the week ending Saturday, the 30th. The barometer was throughout high in the S. and S.W., but comparatively low in the far N. On Wednesday an anticyclone, in which the barometer rose above 30.40 inches, advanced over Ireland, where a brief frost occurred. Next day this system had travelled southeastwards to Brittany and the mouth of the English Channel, in which regions the barometer stood above 30.50 inches. Temperature rose fast in Ireland, as a squally westerly wind spread over the country, and rain fell in considerable quantities. The last two days were very mild, but changeable and rather cloudy. On Saturday evening the sky cleared and temperature gave way quickly. Venus shone brightly in the western sky on several evenings. In Dublin the mean height of the barometer was 30.236 inches, pressure increasing

from 30·006 inches at 9 a.m. of Monday (wind, W.N.W.) to 30·441 inches at 9 a.m. of Wednesday (wind also W.N.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 47·3°, while the arithmetical mean of the daily maxima and minima was 48·1°. The thermometer in the screen rose to 58·3° on Thursday (wind, W.S.W.), having fallen to 31·3° on Wednesday (wind, N.W.). Rain fell on five days to the amount of ·190 inch; the maximal fall in 24 hours was ·102 inch on Wednesday, or rather early on Thursday morning.

The last day of the month—Sunday, the 31st—was squally, cold, and showery. A sharp hail-shower fell at 2 p.m.

The rainfall in Dublin during the three months ending March 31st has amounted to 5·738 inches on 53 days, compared with 6·097 inches on 41 days during the same period in 1888, and a 23 years' average of 6·454 inches on 51·4 days. While double as much rain as fell in January and February of last year fell in the same months this year, the rainfall in March of this year is not one-third that of March, 1888—namely, 3·753 inches.

At Greystones, Co. Wicklow, the rainfall in March, 1889, was 1·71 inches, distributed over only 7 days. Of this quantity ·51 inches fell on the 18th. Since January 1st, 7·97 inches of rain have fallen on, however, only 29 days.

PERISCOPE.

A PIN IN THE HEART.

At the third annual meeting of the American physicians at Washington, Dr. George L. Peabody presented a woman's heart which had one of the papillary muscles attached to the anterior segment of the mitral valve and the wall of the left ventricle pierced obliquely by a pin, the head of which was free in the ventricular cavity. A most careful examination failed to reveal the route by which the pin had travelled to its final location in the body. There was no trace of any inflammation; neither was there a thrombus in the viscus. It is supposed that the pin was accidentally swallowed some years prior to the patient's death.—*The Medical News*, Vol. LIII., No. 16.

SULPHONAL.

W. H. FLINT, M.D. (*New York Medical Journal*, Dec. 15th, 1888), gives a clinical report of thirty-three cases of insomnia, treated by sulphonal. Success attended in about 82 per cent. of the cases. Twenty to thirty grains forms a safe and, in the main, reliable hypnotic, free from unpleasant concomitant effects, and usually from all undesirable sequelæ. The

average length of time in which sleep followed the administration of the drug was an hour, and the average duration of the sleep was six hours. Several of the cases seemed to show that an increase of the original dose is not often required, and that, after a certain time, natural sleep being restored, sulphonal may be discontinued. E. B. Doolittle, M.D. (*New York Medical Journal*, Dec. 22, 1888), reports about thirty cases of insomnia, treated by sulphonal. The results were uniformly good; the dose given, with one exception, was thirty grains. In a few cases, which had been quite obstinate, a few doses seemed to establish the normal habit, and so far no return of the insomnia has occurred.

DEATH FROM SWALLOWING A TOOTH.

DR. WYNN WESTCOTT held an inquest on a man aged fifty-two years, who, whilst eating his dinner, accidentally swallowed one of his artificial teeth with its attached plate. An operation was successfully performed for the removal of the foreign body from the gullet in St. Mary's Hospital. The case went on well for five days, when pneumonia set in, and death quickly resulted.—*The Illustrated Medical News*.

BINIODIDE OF MERCURY.

MR. ILLINGWORTH reports (*Medical Press and Circular*, April 17th, 1889) a case of puerperal septicæmia and peritonitis, which for seven days had had no treatment, cured in four days by the use of biniodide of mercury solution, made by adding 40 minims of a 1 in 4 solution of the iodide of sodium to 6 ounces of the B. P. solution of the perchloride of mercury. This is further diluted with tepid water until a solution of 1 in 2,500 is obtained. With this solution he douches the uterine cavity.

POISONING BY QUININE.

HUSEMANN (*Therapeutische Monatshefte*) publishes some interesting cases of quinine poisoning. A child aged two years and a half drank a solution of 45 grains of quinine. She complained immediately of pain in the stomach, had three convulsions, and died in an hour and a half. The second case was also a child, two years old, who swallowed eight or ten two-grain quinine pills. She had shivering fits and convulsions, and died in two hours.—*The Illustrated Medical News*.

SECONDARY SARCOMA.

MR. JESSOP reports (*The Illustrated Medical News*, No. 3) a case of secondary sarcoma. The patient had had his left testicle excised in June, 1886, for sarcoma, and in April, 1887, a large sarcomatous growth, occupying the posterior triangle of the neck, was removed by Mr. Jessop.

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to bear upon the investigation, proves that both are correct, and that retroposition and descent are *post-mortem* changes.

The question as to how the uterus is maintained in position during life is one of great complexity and difficulty, but it may be said, in general terms, to be due to the intra-abdominal pressure and the resistance of the pelvic floor. A great increase of the former may overcome the latter, or a weakening of the latter may render it unable to support the former. Fritsch illustrates this very well by taking a book between the hands, the book representing the uterus, the lower hand the pelvic floor, and the upper hand the intra-abdominal pressure. Now, so long as the supporting hand is strong to resist the upper one, the book is held more firmly by the pressure from above, but if it become weakened or paralysed the book will fall; so also greatly-increased pressure from above will force it downwards. In like manner the uterus may descend either from a weakening of its supports or a greatly-increased pressure from above. A well-marked example of the latter was admitted into the City of Dublin Hospital a short time ago. The abdomen was distended with an enormous quantity of ascitic fluid. The uterus prolapsed and the vagina distended with fluid formed a tumour between her legs as large as a foetal head. The woman assured me that previous to the distension of the abdomen she had never had any falling of the womb. Such cases are, I believe, very rare, but ovarian and other tumours or spinal deformity may so encroach upon the abdominal cavity as to lead to similar results.

In the large majority of cases, however, the condition depends, as Hegar has shown, either upon a weakening of the peritoneal attachments of the uterus or of the pelvic floor. This division is of the greatest practical importance, and explains two distinct forms of prolapse—that, namely, in which the uterus first comes down, inverting the vagina as it descends, and that form in which the vagina draws the uterus after it. These two forms differ not only in ætiology but in the anatomical changes which they produce, and they require totally different treatment.

It is, therefore, of much importance to consider the arrangements by which the peritoneum and pelvic floor are enabled to resist the downward pressure of the abdomen. The pelvic peritoneum, owing to its wide surface of attachment, its elasticity, and the large amount of muscular fibres in its subareolar tissue, offers strong resistance to downward pressure, and its special arrange-

ment in so-called ligaments enables it to place the organ to which it is attached in the most favourable position to resist this pressure. If, for example, we consider the utero-sacral ligaments or folds of Douglas, their function is to draw the cervix backwards and upwards when from any cause it has been displaced in a contrary direction, and thus the fundus is thrown forward and the intra-abdominal pressure acting through the intestines falling upon the posterior or upper surface of the uterus, tends to increase its anteversion, and thus to diminish the angle between it and the vagina, and to close the latter. The round ligaments have a somewhat similar function, but it only comes into play when the organ is out of position; though not peritoneal, they share in the general relaxation, and need not therefore be considered separately. Relaxation of the pelvic peritoneum thus not only removes a strong barrier to descent, but the organ is allowed to tumble about and may assume a position very favourable to prolapse. In considering relaxation of the peritoneum we must not, however, confine our attention to the pelvic portion, for the entire peritoneum is, as a rule, relaxed, and is very frequently associated with floating kidney, pendulous abdomen, &c. This condition of relaxation may be a hereditary defect, and it has been observed in some families that prolapse in the female and hernia in the male members occurs with remarkable frequency. In by far the larger number of cases, however, this condition is the result of child-bearing.

Now as regards the pelvic floor, the vaginal slit is a source of weakness. It has been shown by Dr. Berry Hart that it divides the floor of the pelvis into two triangles—an anterior or displaceable and a posterior or supporting triangle. The posterior triangle is itself supported by the levator ani and coccygeus muscles. These muscles, to which the name of pelvic diaphragm was given by Luschka, arising from the pubes, pelvic fascia, and spine of the ischium, pass backwards and converge, to be inserted into the perinæum, rectum, and coccyx. The vagina is not only supported indirectly by these muscles, but is directly connected with the fascia covering them. When they contract the perinæum is drawn upwards and forwards towards the pubes, causing a deep cleft between the nates, firmly closing the vagina and causing its axis to become more horizontal. If, however, they be relaxed or paralysed the posterior triangle falls backwards, allowing the vagina to gape and the pelvic floor to project.

Unfortunately relaxation of the peritoneum and of the pelvic

floor are generally found associated, and the combined evils are well represented in the accompanying diagram. But in the wood-cut here we see that relaxation of the folds of Douglas has allowed the cervix to go forwards and the uterus to assume a perpendicular instead of a horizontal position; the posterior segment has been displaced backwards, and is followed by the anterior, which



forms a cystocele. The gaping vagina, it will be observed, is also perpendicular to the horizon, and its long axis therefore coincides with that of the uterus instead of forming an acute angle with it. In such a condition it is evident that the intra-abdominal pressure acting directly upon the fundus might drive the wedge-shaped organ into and through the vagina. If this did not occur the anterior vaginal wall, having lost its support, would probably continue to descend, and, dragging upon the cervix, would tend to draw down the uterus; the supra-vaginal portion of the cervix becoming elongated in proportion to the resistance offered by the ligaments, so that in some cases the fundus is found at the normal level, whilst the os appears in the vulva.

The foregoing is of course but a brief outline of the means by which the uterus is, during life, maintained in its position. There are, in addition, some other factors, such as the retentive power of the abdomen, the rigidity and fixation of the vagina, and the adipose tissue of the pelvis, which time permits me only to mention; but still I think enough has been said to indicate the direction in which our therapeutic endeavours should tend.

Before proceeding to speak of cure, however, it may still be necessary once more to insist upon the importance of prevention. Labour and childbed are to be so conducted as to prevent, as far

as possible, injury to the pelvic structures, to favour involution, and to guard against inflammation. The use of a well-fitting binder is also of importance in preventing pendulous abdomen.

In using the word cure with regard to prolapse, we do so in the great majority of cases in a comparative sense only, since a restoration of the structures to their original condition is possible in exceptional cases only. The various methods proposed for the cure of this condition, both operative and otherwise, are very numerous; but in the present paper I purpose dealing with those methods only which I have myself tried and proved. In a paper which I published some years ago in the *Dublin Journal of Medical Science*, I quoted with approbation the statement of Fritsch, "that it was rational to operate in every case of prolapse." Now, however, I would not go so far as that. Where, for example, the pelvic floor is uninjured, and the chief imperfection is peritoneal, the operative procedures which have been devised for the cure of such cases are so unsatisfactory that I think but few would resort to any of them so long as moderate comfort could be obtained from palliative measures; and if the results of massage prove as satisfactory as they have been reported to be, but few cases will be left for operation.

The treatment to be adopted in any given case will depend upon the pathological conditions which are present, and it is therefore, in the first place, necessary to make a correct diagnosis. For this purpose the patient should be placed in the dorsal position, with the perinæum facing a strong light, the thighs flexed and abducted, and the prolapse, if protruding, replaced. In the first place then the amount of pelvic floor projection should be noted, and if the perinæum be drawn upwards by reflex action when touched. Two fingers are then passed into the vagina and the perinæum is drawn backwards to test its degree of relaxation. The margins of the levator ani muscles and pelvic fascia are sought for, and these muscles are carefully palpated on both sides. Next, the condition of the uterus should be made out, and especially the amount of cervical hypertrophy. The utero-sacral ligaments are then examined and are usually found to be very much thickened, and often tender to the touch. Lastly, the patient should be directed to cough, and the order in which the parts descend observed.

The first method of treatment to which I would direct attention is that by massage, or Thure Brandt's method. This is a subject which I approach with much diffidence, as I have not given it an

extensive trial, but I believe that Dr. Smith has done so in the Rotunda Hospital, and I hope that ere long he will favour us with his experience. Without anticipating his remarks I may mention that this method consists of four separate procedures—1st, a tapotement of the spine; 2nd, massage of the pelvic contents; 3rd, lifting of the uterus—the organ being grasped with both hands through the abdominal wall; and, lastly, the forcible separation of the patient's knees whilst she endeavours to keep them in apposition. Upon the first and third of these I will not speak; but the value of massage in the cure of chronic inflammation of the uterus and its ligaments I have repeatedly proved, and that the forcible separation of the knees throws the levator ani into a state of firm contraction I have proved to myself and demonstrated to others.

In the large majority of cases we are still obliged to resort to the use of pessaries. I say "obliged" because I still believe that in any case in which a vaginal operation holds out a fair prospect of success it is preferable to the use of pessaries, which by distending the vagina and causing leucorrhœa tend to increase the mischief which they are intended to relieve, besides they condemn the patient to more or less constant medical supervision which is in itself a great evil. The best pessary when available is Hodge's, or some modification of it, which by anteverting the uterus restores the organ as nearly as possible to the normal position, but when the pelvic diaphragm is injured or paralysed such instruments are not retained, and we must then use broader ones, and that which I most frequently employ is Meyer's ring, which has the great advantage that the patient can remove and re-introduce it herself.

Of vaginal operations I have myself resorted to but two methods—namely, Hegar's and Martin's; the former in women who had passed the childbearing period, and the latter in younger women. I have done altogether eight such operations, and in one case only, so far as I am aware, has a recurrence taken place. That case I operated upon in 1885, and published in the paper to which I have already alluded. The patient was a midwife, and the prolapse complete, and both the late Sir Edward Sinclair, under whose care she had been, and I myself entirely failed in our endeavours to keep it up by any kind of support. The operation which I performed was Hegar's, and the result was, at first, very satisfactory. She resumed her occupation as a midwife and performed the most laborious duties, such as carrying her patients from one bed to another without inconvenience. After two years, however, the

prolapse recurred. I again failed in the use of pessaries, and she herself tried various plugs, supported by T-bandages, but in vain; and she was quite unable to continue her occupation. It seemed to me that I had now but three courses open to me—1st, to remove the uterus; 2nd, to perform abdominal section and stitch the uterus to the abdominal wall; and 3rd, to shorten the round ligaments. I determined upon the latter, but being aware that experienced operators had, in some cases, altogether failed to find the ligaments, I resolved to practise, in the first instance, upon the dead subject, and for the opportunity of so doing I have to thank Professor Cunningham, who also afforded me the valuable assistance of Dr. Brooks. In the dead subject we found the ligaments and drew them out with great ease; but Dr. Brooks has since informed me that in some subjects which he has examined it was quite impossible to find them at the external ring.

In August, 1887, I operated on my patient. A thick layer of fat having been cut through, I found the ligaments without difficulty following the guides indicated by Dr. Alexander, and drew them out several inches. I found more difficulty in drawing out the right ligament than the left one, and in my attempts to do so it gave way, so that I had some trouble in securing the stump and in stitching it to the pillars of the ring. The ligaments were secured as recommended by Dr. Alexander, the rest of the wounds stitched up from the bottom and dressed with Lyster's gauze; nevertheless they suppurated, which somewhat delayed convalescence. A ring pessary was introduced into the vagina, which she still wears. Some time after leaving hospital a hernia formed in the right inguinal region, for which she wears a truss. This is, of course, a serious drawback, but I asked the patient herself if she regretted having submitted to the operation, and her reply was that the rupture did not prevent her going about and doing her business, whilst the prolapse confined her almost entirely to her bed.

In conclusion, I would state, as the result of my experience, that in all cases where the pelvic floor is incompetent I should resort to operation; but where the peritoneum is at fault I should use pessaries and reserve operative measures for those very exceptional cases in which they entirely fail to give relief.

ART XXVI.—*The Treatment of Tubercular Peritonitis by Abdominal Section, and Flushing out without Drainage.** By ROBERT O'CALLAGHAN, F.R.C.S.I.; Fellow of the British Gynæcological Society; Surgeon, Carlow County Infirmary, &c.

THE treatment of tubercular and suppurative peritonitis has, within a comparatively short period, been rescued from the expectant and practically impotent treatment of the physician, and has now passed into the yearly increasing domain of the surgeon, and it is not the least of the modern triumphs of our art. In England and abroad this is a universally accepted fact; but from statistics we do not seem to have followed in the footsteps of progress as regards this treatment, and seem slow in accepting the fact that the principles applied to general surgery are just as applicable to that of the abdomen. It is with a hope that a stimulus may be given in this direction by this great post-graduate teaching centre that I venture to bring before your notice this evening my small but gratifying experience, and, as far as I can collect them, the statistics of this treatment up to the present date.

In a great many recorded cases the abdomen has been opened, under an erroneous diagnosis, for ovarian and other tumours, and in exploratory incision tubercular disease has been discovered, the abdomen cleansed and closed, and the patients have done well. I wish, however, to refer particularly to-night to those cases in which this degeneration of the peritoneum has been diagnosticated, abdominal section with flushing out of the cavity has been adopted with complete success. Before going further, I will, with your permission, give you a brief history of my cases, and I am not aware of any such being reported hitherto in Ireland.

CASE.—James G., aged fifteen, whom I had the pleasure of showing to you at the last meeting of this section, was admitted to the Carlow County Infirmary, June 7th, 1888. Family history was good, all living save his mother, who died of fever. He presented the following appearances:—General emaciation, pale face, dark circles round the eyes, with bright malar flush and hurried respiration; a large distended abdomen, very tumid, yet symmetrical; he complained of dull colicky pains, which were never severe, but came and went away every few hours, night and day; more or less tenderness on pressure; appetite completely gone, could only take small amount of fluids, which he frequently vomited;

* Read before the Section of Surgery in the Royal Academy of Medicine in Ireland, on Friday, February 22nd, 1889. [For the discussion on this paper see page 535.]

constipation; secretion of urine scanty; skin dry and harsh. He had been suffering in this way for a month previous to his admission, and traced his illness to a blow from a boy's head in the stomach while playing football. He was sent in to me as a case of hepatic dropsy, and at the time thinking it might be, I treated him for hepatic mischief, and also painted the abdomen night and morning with iodine. He, however, got daily worse, and diarrhoea set in. Taking the facts of the case, the age of the patient, the condition of the main organs, I decided in the first week of admission that it was a case of tubercular disease, and that the only hope left to the boy was operative interference. In this diagnosis his former physician, Mr. W. O'Meara, concurred, and kindly gave ether for me. His pulse at the time was 98, weak and thready. Temperature varied from 100° to 101°. I opened the abdomen in the mesian line, midway between the pubes and umbilicus, sufficient to admit my finger, and speedily emptied it of a gallon or more of a sero-purulent milky fluid. On everting the peritoneum I found it covered with little nodules, like millet seeds. On introducing my forefinger in every direction I felt the same state of affairs. With some little difficulty, owing to adhesions, I drew out a portion of mesentery, which looked like the "roe of a fish," or the "inside of a fig." The case seemed so hopeless I allowed Mr. O'Meara to examine this. I then flushed out the cavity with gallons of blood-warm water from the tap, meanwhile massaging the abdomen until the water came out quite clear; then turning the boy on his side I emptied it as much as possible, put two stitches in the wound, covered it with alembroth wool, and put him to bed. With the exception of a slight rise in temperature on the third day, with sickness and tympanites, which was immediately relieved by a turpentine enema, followed by a seidlitz powder, he made an uninterrupted recovery. In the third week he was up, and had an enormous appetite, which he still possesses. You saw the other evening that there was no trace of disease left; and he is now about to join his brother in Australia.

To me it is the most gratifying case I have ever had the pleasure of meeting with. I have had two other cases of ovarian tumours complicated with this degeneration, one of which was successful. Of the fatal case I will give you a brief history of the *ante-mortem* state of the abdomen. When she came to me there was a history of a swelling for fourteen months. Five months previous to my seeing her she was tapped for ascites, and evidently had an acute attack of localised peritonitis. The tumour, a multi-locular one—which I showed last meeting here—was adherent in front throughout to a thickened and almost cartilaginous peritoneum. On removing it I found the liver atrophied and a mass

of tubercle. The intestines, covered with miliary nodules, were bright red, and more like those of a fowl. The mesentery was rolled round a portion of them, and the omentum a firm mass with tubercle, like a sausage. I did not flush out the abdomen in this case, for which error I was very sorry, as despite this state of affairs she lived three days with little or no discomfort. These two last cases, with others, have led me to conclude that if any abdominal tumour is not removed within a reasonable time of its formation, you are bound to have this form of degeneration set up as a complication, and furthermore illustrates the fact that more knowledge of the symptoms of abdominal disease in its early stage, and that such is now curable, is wanted by the general practitioner, so as to prevent this repetition of criminal neglect, which, I am sorry to say, is too common—the surgeon not seeing them until they are past hope of any treatment, and many cases die unrecognised. The first successful case I find in which the disease was recognised before operation is one reported by Mr. Lawson Tait in 1879, a parallel case to my own. Since then he has had a great many, in all stages of the disease, with a mortality of 15 per cent. In the same year Dohrn operated on a child four years old with success. Mr. Treves, in 1883, published several cases; one was in an infant sixteen weeks old; it died three weeks after of acute miliary tuberculosis; and last month he reports many more cases. Clarke, of Huddersfield, published a successful case (*Lancet*, Nov. 5th, 1887). Koenig gives four successful cases, in one of which he moved a bit of mesentery in which he found the bacillus tuberculosis. Hofmohl published a case (*Wiener med. Woch.*, 1887). Poten, in the same year, gave a successful case (*Centrabll f. Gynäk.*), in which he removed a nodule, and found, after great difficulty, the bacillus in giant cells. John Homans, of Boston, gives two similar cases to mine in the *Lancet*, Feb. 5th, 1888. These are the only reported cases I can find in which the disease was previously recognised. Kümmell, however, before the German Congress, in 1887, collected 40 cases. In each case the cause of operation was erroneous diagnosis. He gives as the earliest case one in which Sir Spencer Wells operated in 1862. He opened the abdomen to remove an ovarian tumour, and found tubercular peritonitis; he simply drained it, and the patient was alive in 1887. Schwartze collected 17 such cases. The age of the youngest was four. Knaggs, Esmarch, Mikulicz, and Wagner have each published cases, and all these great authorities speak

equally favourably of the treatment—the best results being obtained from flushing out and immediate closure of the wound.

Mr. Tait now says that we must drop the word “Tubercular” concerning peritonitis, as this disease has no kind of association with tubercles in the lung. However, as to the pathology of it we are uncertain, if not entirely ignorant.

I look upon it as a distinct form of tubercular degeneration, the same as met with in joints and bone, and if dealt with early, as in these cases, by operation, you will have as simple a cure; but, as in joints, so it is in the peritoneum—if we procrastinate with expectant and palliative treatment the result will be most unsatisfactory, and such treatment must be looked upon in future as a surgical crime. At this stage in a joint you scrape and if necessary excise it, and although we can now remove many offending organs from the abdomen with impunity, we cannot remove the peritoneum. As to diagnosis, statistics show us that many eminent authorities have made repeated mistakes, and the conclusion I have drawn from that is—when I meet a case of distended ascitic abdomen I would not under any circumstances tap it. It is my practice to open it, “prepared for any emergency,” by an incision sufficient to admit my forefinger, which will enable an experienced surgeon to ascertain in a minute the exact condition of affairs inside. Should it only happen to be simple ascitic the result will be sometimes cure; and in any case the fluid will not reaccumulate for a much longer period than if tapped. In malignant disease it gives a complete abeyance for an indefinite period of the agony and urgent symptoms, and in some cases complete disappearance of the growth. This may seem, to some of you, heroic and incredible, but I can assure you, from personal experience, that it is fact; and that by this treatment not only do you know the exact state of things, but you are running less risk, if any, than plunging a trocar into a distended abdomen, and you are certainly more merciful to your patient. As to the physiology of this method of cure we are equally in the dark, and we have so far only to accept the fact.

In conclusion, I argue that from my own experience and that of others far more competent to judge, that when tubercular or chronic suppurative peritonitis is patent, and that a fair trial has been given to medicinal treatment, it is our duty as honest surgeons to open and flush out the abdomen. The operation in itself being a simple one, but strict attention to detail being more

essential, it cannot safely be attempted in general practice. Of the fact that expectant and hopeless treatment is daily persisted in I am painfully cognisant, and may have more opportunity than many of you in seeing how hard it is to dispel the absurd idea from men's heads that the peritoneum is not still the sacred precinct that we were taught it was, and, though fully aware of their inability to relieve under those conditions, on conscientious grounds are afraid to recommend their patients to undergo operation. Is there one amongst us who has not sometime in his experience met with such cases, and felt how powerless we were to deal with them, while they sank daily before our eyes? I must say I look back with regret to my ignorance of this treatment, but most hopefully to the future. This Section can do a great deal to further this, and impress, through its members and literature, on the busy, hard-worked practitioner that this and other abdominal disease is no longer incurable, and that in cases recognised early and sent up for treatment operation is not only justifiable but certain of success. Then, and not till then, will suffering humanity have a more extensive benefit of the great strides our art has made in its abdominal branch.

Since writing I have had another successful case.

ART. XXVII.—*Dental Caries as a Result of Inflammation of the Dentine.** By ROBERT H. MOORE, F.R.C.S.L.; President of the Irish Branch of the British Dental Association.

GENTLEMEN,—My first duty on taking the chair on this occasion is to return you my best thanks for the honour you have done me in electing me the President of the Irish Branch of the British Dental Association for this year, but I very much fear you will find me a very inadequate successor to the eloquent gentleman who so efficiently presided over your Branch last year. However, I must only crave your kind indulgence towards my shortcomings.

It occurred to me to take this opportunity of offering a few remarks on the subject of dental caries, as, though I am perhaps sadly deficient in a knowledge of the literature of the subject, I have had extensive opportunities of observing and treating the disease for many years. I say disease, for the result of my study of the subject is to convince me every day more and more that caries is

* Being the Presidential Address delivered before the Annual Meeting of the Irish Branch of the British Dental Association, on Saturday, April 27, 1889.

a morbid vital process, an inflammation of the dentine, acute or subacute, rendering the affected portion of the dentine more or less painful, often exquisitely sensitive to the touch, so that in very many cases the patient can scarcely bear the necessary removal of the affected portion of the dentine. In Tomes' Dental Surgery* it is stated that "Cases are not infrequently met with in which the carious dentine possesses such an exalted degree of sensibility that its removal cannot be borne, and the patient flinches from the slightest touch of any instrument." Yet if the operator and his patient persevere, and the former succeeds in removing all the affected dentine in a case in which there is still a sufficient covering of sound tissue over the pulp cavity, you will find that the sound dentine is nearly or quite insensible to pain, and that by making an air-tight filling of suitable material you will, in very many cases, completely arrest the progress of the caries, and preserve the tooth for many years. In those cases in which the diseased portion of the dentine is so exquisitely sensitive that the patient cannot bear its complete removal, I endeavour to take away as much of it as will allow of its retaining a small portion of a dressing composed of equal parts of arsenic, hydrochlorate of morphin, precipitated chalk, and carbolic acid—a very small quantity of the above rolled up in a few fibres of cotton wool, taking care to have the tooth perfectly dry, and keeping it so by securing over it a small pellet of cotton wool moistened with copal ether varnish, or a little beeswax slightly softened.

I find that in twenty-four hours the dentine will be nearly or quite insensible, and capable of being removed without serious, if any, pain to the patient. In Tomes' work some cases are mentioned in which the use of arsenic to remove the extreme sensibility of the dentine is stated to have been attended with mischievous results. I can only say I have constantly used the above paste for many years without having ill effects in those cases. I also use the same dressing in cases in which I find it necessary to devitalise the pulp.

There must be vitality in the teeth, or all teeth similarly situated as to food, &c., would be equally attacked by decay, at least at the same periods of life. Yet we meet with mouths in which the teeth remain sound through life, but caries certainly most usually commences in the fissures in the enamel where there appear to be arrests of development, since we so often see caries beginning in

the six years old molars at as early an age as eight or ten years, and in the middle molars at the age of fourteen or fifteen years.

In cases of caries affecting the anterior and middle molars in very young persons I was many years ago in the habit of thoroughly removing all softened dentine and filling the cavities with an amalgam of precipitated silver, and I have often subsequently seen them, after 20 or 30 years, perfectly preserved. Indeed I think the above filling appears to be the best and most permanent filling that can be used in such cases.

Again, as to caries being an inflammation of the tooth tissues attended by absorption of the lime salts arising from constitutional causes, I have often observed an outbreak of destructive caries coming on after some severe illness. One case I remember, in which a young gentleman had a severe attack of smallpox, from which he recovered well, except that his teeth, which had previously been sound, commenced to decay generally and rapidly. The influence of mental anxiety sometimes tells remarkably in the same direction. I have known an instance in which the loss of a favourite son in battle has apparently, almost certainly, been the forerunner of an attack of widespread and rapid dental caries; and more than once I have seen cases in which great disappointments have in young people, particularly of the female sex, been followed by similar results—soft white caries suddenly showing itself with great intensity and widespread prevalence. In nursing mothers a precisely similar train of events may sometimes be observed.

Although in Sir John Tomes' work on Dental Surgery (3rd edition) it is laid down "that caries is an effect of external causes in which so-called 'vital' forces play no part," yet, I think, there are many facts stated in this valuable work which seem to point strongly in an opposite direction. At page 276 it is stated that "the female sex is distinctly more liable to dental caries than the male. The patient's age, likewise, markedly influences the disease. Thus if it has not occurred before the age of five-and-twenty, there is a strong probability of immunity till about the fiftieth year, when, coincidently with other manifestations of bodily decline, the teeth again become liable to be extensively attacked by caries."

Sir J. Tomes also mentions a case in "which almost every tooth was attacked by caries during a severe and protracted attack of rheumatic fever, though up to this time, the patient having reached the age of forty, the teeth had remained sound." The same author also states that "there can be no question that the tendency to

caries, whether induced by structural deficiencies or perverted functions, is strongly inherited; so strongly, indeed, that sometimes as the several children of the parent successively arrive at a certain age the corresponding teeth will become decayed."

These passages in Tomes' work, and also the paragraph referring to the extreme sensitiveness of the carious dentine, appear to me to point to caries being an inflammation of the dentine with absorption of the lime salts, and I think this view of the subject is strongly corroborated by the absorption that takes place of the fangs and crowns of the deciduous teeth at their period of shedding, because we see that in cases where they have been attacked by caries, and the pulp cavity opened and death of the pulp has ensued, no further absorption takes place, and the dead roots of such teeth remain in the way of the second teeth, often causing them to take a wrong direction, and retarding their development.

In conclusion, the following are the views which I wish to advance in this address:—

1. Dental caries is often, if not always, an inflammation of the dentine.
2. The inflamed dentine is often exquisitely painful when an attempt is made to cut away the resulting caries.
3. The teeth are possessed of innate vitality, else they would be equally attacked by decay at the same periods of life.
4. The progress of inflammation of the dentine may be arrested by suitable antiseptic treatment and filling so as to exclude air and moisture.
5. Carious inflammation often arises from constitutional causes, such as heredity, the cachexia of acute fevers, mental anxiety, or the "grand climacteric" in either sex.
6. The view as to the intimate nature of dental caries which I have advanced receives additional confirmation from an observation of the absorption of the fangs and crowns of the deciduous teeth which takes place at their period of shedding.

ART. XXVIII.—*Dyspepsia: its Causes and Treatment.*^a By
CHARLES KEVIN, M.D., M.Ch., L.M.

MANY and various are the causes in operation which produce dyspepsia. I purpose to refer only to the chief factors at work in our midst which conduce to the increase of this very prevalent and, I believe, rapidly increasing disease, and to point out the treatment which commends itself to my own judgment. I do not intend to give the history of case after case—neither shall I give much time to the experience or opinions of others—but will chiefly depend on my own observations.

Having had experience both of town and country practice. I have been greatly surprised at the absence, comparatively speaking, of this complaint from the rural population, notwithstanding their want of care in cooking, their inability to procure fresh meat, and the great sameness of their dietary.

I daresay that half our patients, say in a city practice, are suffering from some gastric trouble brought on by town life—absence of fresh air and sedentary employments leading to an anæmic condition of the system and followed by dyspepsia.

Eating more than we can assimilate is a frequent cause. Some think we should partake of a certain quantity of food at stated intervals irrespective of the craving of hunger. Partaking of food when the mind is occupied by either business or, more likely, reading the newspaper, not sufficiently masticating our food is another cause. Many people think it is very important to masticate animal food, but that bread, &c., may be almost bolted, whereas we know that the mouth has nearly everything to do with the digestion of farinaceous food and almost nothing with animal food. Tea boiled, tea too strong, and the too frequent use of tea is responsible for a large portion of the dyspepsia of the female race. The washerwoman must have her cup three or four times over her tub; the lady in society must be able to take a few cups every afternoon in addition to her morning supply; girls in warehouses and factories have tea for breakfast, dinner, and supper, and often between meals. We all know the characteristic dyspepsia following an excessive use of alcohol—the coated tongue, the morning sickness, and the peculiar craving at the pit of the stomach felt by such victims. Fish produces a very painful form of dyspepsia with many people. I have known several cases where the least

^a Read before the Ulster Medical Society, Wednesday, April 10, 1889.

quantity of any kind of fish would cause obstinate vomiting. Haricot beans act in a similar manner with some. I do not think the cooking can be at fault, as in several cases only one member of the family suffered from haricot bean poisoning, the others escaping. Worry and anxiety of mind is frequently an exciting cause; it seems to stop the secretion of saliva and gastric juice, and so bring on dyspepsia. Improperly cooked food is another cause. The lower classes have no opportunity of learning how to cook at home. The girls only see their mother boil and soda the tea, stew the meat, and bake sodden bread. In the higher circles very few girls when they marry have any idea how to command a regiment of pots and kettles and saucepans, how a joint should be cooked, or a pudding should be made. Surely a city like Belfast could support a school for plain cookery! Irregularity in taking food is a well-known cause. Sometimes an interval of six or seven hours, then only three or four hours to the next meal, causes a great disturbance in the digestive function. An exhausted state of the body immediately before partaking of food is an exciting cause of indigestion. Imperfect teeth, unhealthy surroundings, want of variety in food, excessive use of fluids at meals, condiments, pickles, and sudden changes from hot to cold articles of diet, are all conducive to dyspepsia.

With regard to the treatment of dyspepsia, it would be a great matter towards its successful treatment if we could give a satisfactory classification of its different forms, but I think this would be as difficult as to classify the forms of puerperal fever, where no two cases are ever approximately alike. "The books" inform us that we have the irritative—of course the acute and the chronic—and the nervous, or what the Yankees term the neurasthenic type. But the acute is only generally an exacerbation of the chronic, and the chronic a prolonged acute attack, while we are almost sure to have the irritative and the nervous with both kinds.

In the treatment of this affection drugs can never hope to hold a first place. Their effects can only be at best transient—very useful to relieve some prominent symptoms, such as pain, flatulency, or constipation—but it is from the careful regulation of the habits and dietetics of our patient we must expect the most hopeful results to follow. Food is ever exercising an influence on the system; medicine can only influence for a limited period, and often purchases present comfort at the expense of future suffering.

The other day a lady was anathematising the heads of the

profession in this city and in London who had treated her husband for dyspepsia, because though he had been told not to take pork, coffee, pastry, &c., yet he had never been told what *to take* until he visited Dr. Hunter, when his diet was carefully prescribed for him, but no medicine given. She declared, and I have no doubt rightly, that if that had been done before he would have been saved years of suffering. I think most of us must plead guilty to giving a great deal of negative advice—"Do not take this," and "Do not take that." When our patients have found out for themselves that the foods we mention have given them pain they have abandoned them previous to consulting us, and a large number of them can only partake of dry bread and tea, and now we must cut off the tea.

I find it a good method to take down in writing what a patient has for breakfast, dinner, and supper, the times of the meals, and the varieties in his food from week to week. *e.g.* :—

Breakfast.—Perhaps ham and eggs, hot buttered toast, tea or coffee. Now change this to something just as nutritious, but what the stomach will be better able to deal with. Allow the patient some Scott's Midlothian oatflour or revalenta (which will act as a sedative to the stomach), toasted bacon, or a mutton chop, or white fish. If tea is permitted, let it be drawn in a cup while partaking of something else; only one cup to be taken, sweetened with saccharin if our patient is much troubled with flatulency.

With regard to dinner—The patient may not be the least particular what kind of soup he may partake of, roast beef, vegetables, pastry, porter, ale, milk, or water, fish, cold and hot dishes. Now in dyspeptic conditions a clear soup will generally agree: white fish, mutton chop, rice, stewed apples, vermicelli, or custard pudding—all may be given.

Neither tea nor coffee should be taken immediately after dinner. Rest before and after a meal should be insisted on. Boiled or stewed meat should be forbidden; few, if any, potatoes should be eaten; steak will often agree better with the patient than a roasted joint; chicken, turkey, or game may be used for a change, but mutton in most cases should be the rule.

If dinner is taken in the middle of the day it should be what we call lunch, and if followed in about four hours by tea this meal should include Midlothian flour, a lightly boiled egg, or cold mutton or cold chicken.

Fluids should be sparingly used at meals, but benefit will be

derived by drinking water two or three hours after food, especially if acidity is felt. Drinking a glass of cold water sip by sip will in most cases relieve acidity in a few minutes.

Total abstainers suffer an unrecognised evil in depriving the body of a sufficient supply of fluids. Moderate drinkers will take a pint or more of fluids in twenty-four hours, and so get *stout* on their *stout*, not, in all probability, owing to any fat-giving ingredient in the fluids consumed, but because our bodies require a large supply of fluids, seeing they are so largely composed of water.

Constipation precedes or accompanies most cases of dyspepsia, and here much harm may be done by ordering purgatives, which, owing to their irritating action on the alimentary canal, make what might have been only a temporary alteration of function into a permanent one. Nothing but the mildest purgatives (if any?) should be used. The enema of warm or cold water or glycerine is, in my judgment, to be preferred to anything else. If we cannot secure this method, then a teaspoonful of flowers of sulphur or the compound liquorice powder answer very well. I have been disappointed with cascara sagrada, but given with tincture of nux vomica, tincture of belladonna, and glycerin, it is a useful aperient and tonic.

Of course when using any of these drugs the diet must be arranged so as to overcome constipation. Water-closets, I believe, often cause constipation. The abdominal muscles have not the support our ancestors gave them in the "knee-elbow position" once a day behind some secluded ditch back. I know a gentleman who is always constipated unless he gets up on the seat, instead of the usual position. This might be somewhat obviated by making the seat lower than it usually is.

I have visited two of our best known hydropathic establishments. Whilst feeling that the water-treatment hobby was universally overdone, I could not shut my eyes to the fact that much good resulted to many of the patients by their stay there. The regular hours for exercise, food and sleep, the freedom from business cares, the careful dieting of each individual, prevented in most cases the multitudinous ablutions performed on the patient at least from doing him any harm.

I have tried about a dozen cases of painful dyspepsia with what the hydropaths call the "hot pad" and "binder." It is made up of three parts—a pad (four-ply of swansdown) about 12 in. by 6 in.; a roller 2 yards long, half swansdown and the other half

mackintosh cloth; and $1\frac{1}{2}$ yards of a flannel binder. The pad is put into boiling water and wrung out. It is then put over the abdomen at bedtime, covered with the cotton and waterproof binder, and over all the flannel binder is placed. In the morning all is removed, the abdomen is sponged with cold water and rubbed with a rough towel, the flannel binder is then put on and worn throughout the day. Where much pain is complained of the whole apparatus may be worn constantly. I think the beneficial effects are due to the fact that more blood is brought to the parts requiring it; spasm is relieved, and support is given to the abdominal muscles. I find in cases where I have ordered it that it relieves flatulency, pain, constipation, and distension. It is also useful in insomnia, and cleans the tongue when coated.

I had an interesting case of hiccough about three months ago. A master plumber had suffered from it for ten months. He called on me one day when I was preparing to catch a train. I gave him rather a hasty examination, and prescribed for him, but when taking his departure (evidently seeing my haste) he said, "I do wish, doctor, you would take an interest in my case. I have been with at least six doctors and I am becoming worse." I asked him to call again when I had more leisure. On examination I found he had been drugged for months, blistered over the phrenic nerves and over the stomach. His food had been prescribed for him, and I have no doubt all the usual remedies had been given before he came to me. I carefully regulated his diet, blistered, gave him the usual antispasmodics—*e.g.*, camphor, chloroform, asafoetida, gentian, cardamoms—pressure, and deep inhalations. Fifteen grs. of sulph. of zinc relieved him most. After vomiting he would sometimes have two or three hours of relief. He was quite willing to take this remedy three or four times daily in order to get relief. He had a spasm with every alternate respiration; it continued four days out of the seven, and then he had three days relief. He was free from it when asleep, but it returned at once when awaking. When all the drugs I could think of failed, I tried the "pad" with complete success. I see him often, but the complaint has not returned since he commenced to use the binder, now about three months ago.

When pain is felt on deep pressure in the epigastrium the liquor epispaeticus rubbed in is a favourite remedy with me. It is much better than bismuth or morphin or hydrocyanic acid alone or combined for the relief of pain.

I have an obstinate case of dyspepsia on my list for five or six years. When he has a severe attack now I apply a fly blister at night, and it relieves him usually for three months. This man has been with a number of doctors in this city, and his verdict was—"The regular practitioners made me very little better, and our homœopathic friend made me worse." One of our best therapeutists gave him the following prescription, warranted to hit something!

Tinct. capsici, 3iii; tinct. asafoetidæ, 3i.; ammonii carbonat., gr. xl.; tinct. nucis vomicæ, 3ss.; liq. arsenicalis, 3ss.; liq. morphinæ, 3iv.; dec. aloes co. ad. 3viii. Mix. 3ii. bis in die.

It relieved him more than any other prescription he had ever tried, he said.

Acids or alkalies are generally given in dyspepsia, and most conflicting views are held as to which should be given, and whether before or after meals. When in doubt I always give acids, and after food, usually combined with tincture of nux vomica and glycerin. I believe acids should be given when a catarrhal condition of the stomach and bowel is present, or when acidity is complained of.

Milk will often disagree with the dyspeptic. Peptonising it soon makes it disgusting to the patient if an adult. It is only with children I have seen many mighty works accomplished by this method, and here it has no rival. I have had little experience with pancreatic food; Benger's is the only preparation I have tried, and that with very little benefit. Lactopeptin in 10-grain doses to aid digestion in a little milk with meals I can recommend highly. It relieves uneasy sensations, improves the appetite, and I believe is slightly aperient in its action.

What with pre-digested food, concentrated food, condensed food, and all the other aids to digestion, our stomachs will soon have nothing to do. In civilised countries the teeth are becoming more and more unfit to tear and rend our food, owing to the use of knives and forks, and soon with all these preparations future anatomists may discover in a body here and there the rudiments of a stomach now no longer required!

ART. XXIX.—*Anæsthetics.* By GEORGE M. FOY, F.R.C.S.I.;
Surgeon to the Whitworth Hospital, Drumcondra.

(Continued from p. 316.)

CHLOROFORM anæsthesia may, if proper precautions are taken, be prolonged for some hours. In a case of ilio-femoral aneurysm in St. Vincent's Hospital, under the care of Dr. Mapother, the anæsthesia was kept up for twelve hours. He writes,* "I determined to postpone deligation, and employ compression with the aid of chloroform. Next morning (Monday, 27th February), at eight o'clock, I chloroformed the patient, and at once stopped all pulsation by pressure with Carte's apparatus, in the common iliac artery, about one inch below the umbilicus, and half an inch to its right side. The skin was shaved, and protected by finely-powdered French chalk. The stoppage in the circulation was never complete for more than a few minutes, for the movements of the patient, the action of the abdominal muscles, the rolling of the vessel under the pad, allowed an occasional slight current to pass through it. Severe vomiting occurred at seven p.m., and rigors succeeded every fifteen or twenty minutes, and for these reasons the administration of chloroform was discontinued at eight p.m., having been maintained for twelve hours; and the patient at once feeling pressure intolerable, the instrument was removed. . . .

"On Saturday, March 4th, as my patient had considerably recovered his strength, I resolved to try pressure with the help of chloroform once more, and as the red and exquisitely tender patch produced by the former attempt reached the umbilicus, the aorta seemed the only available vessel. . . . The patient having been rendered quite anæsthetic, the superficial femoral, according to Dr. O'Ferrall's suggestion, was compressed by Skey's tourniquet just below the sac, in which most of the blood was in this way retained. The horse-shoe clamp, Signorini's . . . was placed one inch above the umbilicus. . . . When the screw at the junction of the arms was turned to its utmost, all pulsation in the tumour and the opposite limb stopped. From nine a.m. till half past eleven the pulsation occasionally recurred by the patient moving, which shifted the clamp towards the right side. At that hour, with the assistance of Mr. Collis, . . . it was tied over to the left side by a bandage wound round its pads. When thus adjusted it was found that the left femoral pulsated, indicating that pressure was now

* *Medical Press*, 29th of March, 1865.

on the common iliac. However, as the pad was one inch above the umbilicus, the aorta must have bifurcated one and a half inches higher up than usual. For four and a half hours uninterrupted pressure was maintained, and on removing the instrument on the termination of that period we were indeed overjoyed to find the tumour solid and entirely pulseless. He had two severe rigors, which we relieved with brandy and external warmth."

Dr. Murray,^a Lecturer on Physiology in the University of Durham, kept a patient under the influence of chloroform for five hours without any unpleasant result. Mr. Heath,^b of the Newcastle Infirmary, in a case of aneurysm of the external iliac, maintained chloroform anæsthesia for seven hours. Long-continued inhalations of chloroform, however, occasionally produce unpleasant effects.^c The *Journ. de Méd. et Chir. Prat.*, 1883, reports the case of a young woman, who was seized with violent headache a fortnight after her confinement. The pain yielded only to chloroform inhalations, which were continued during three days; after that time the patient became restless, tried to escape, and was beset during ten days with terrible hallucinations. A man who was suffering from neuralgia, and who had been under the influence of chloroform for about twelve days, was seized with similar symptoms, which lasted nearly two weeks.

Purpura has been caused by its inhalation. Morel Lavalée^d reports (*Journ. de Méd. et Chir. Prat.*) three cases, in which an abundant eruption of purpura rapidly developed in patients who had just begun to inhale chloroform. After two or three minutes the anterior surface of the thorax was covered with patches measuring three or four millimetres in diameter; some of them were rapidly transformed into bullæ, filled with bloody fluid. These purpuric patches are probably caused by some reflex angiectasis, and seem to belong to the same class as the nervous purpura, which, according to Vidal and Fournier, has been seen to occur after a violent emotion.

One of the most annoying results from anæsthesia is the production of erotic hallucinations, which occur during recovery from the narcosis; and, as is the rule in subjective impressions, they are very vivid. This danger, if there were none other, would be

^a Ut supra.

^b Ut supra.

^c The London Medical Record. Vol. XII., p. 69.

^d The London Medical Record. Vol. XII., p. 164.

sufficient to necessitate the presence of a second medical man during the administration of an anæsthetic.

Of the many suggestions made to diminish the risk of chloroform narcosis, one of the most recent is that known as Neudörfer's method, of which Dr. V. Idelson^a gives the following account (*Vratch*):—"At a meeting of the St. Petersburg Medical Society, Dr. Beitel's made a communication on artificial anæsthesia after Neudörfer's method, somewhat modified by himself. Anæsthesia, by means of a mixture of chloroform with oxygen, requires far less quantities of chloroform comparatively with the usual methods of its administration, and is, accordingly, associated with less danger. Moreover, perfect anæsthesia ensues far more easily, and may be obtained even in those patients in whom chloroform alone has failed. When the quantity of chloroform in the mixture does not exceed 10 per cent., no sickness is observed. The pulse remains unchanged, the tongue never falls back. To ensure complete narcosis, it is essential to firmly adjust the mask to the patient's face. Professors A. J. Krassovski and V. V. Sutugin have also obtained good results from the use of a mixture of chloroform with oxygen."

The difficulty of regulating the proper proportions of chloroform vapour and oxygen interfered with the general acceptance of the mixture, although Professor Neudörfer, in his practice in Vienna, demonstrated that it produced speedy insensibility without excitement, and was free of the dangers incident to the use of chloroform. Dr. Kreutzmann, of San Francisco, Ca., however, devised a more simple arrangement for the administration of the chloroform vapour and oxygen gas than that used by Neudörfer, and published his results in the *Centralb. für Chir.*, No. 35, 1887. His paper is made the subject of an article by Dr. Johnson Smith,^b who writes: "Kreutzmann has given up all endeavour to supply the chloroform in fixed doses according to Neudörfer's directions, and now, in order to administer the mixture in an efficient manner, he attaches, with the intervention of an exhausting pump, an elastic bag containing oxygen to Junker's chloroform apparatus. In this way oxygen in the place of atmospheric air is pumped through the chloroform, and the patient inhales oxygen impregnated with chloroform vapour. It is pointed out that some air is taken in at the same time, as it is impossible to exclude this by the mouth-piece."

^a The London Medical Record. Vol. XIII., p. 514.

^b The London Medical Record. Vol. XV., p. 441.

Dr. Kreutzmann speaks very favourably of the results obtained from the use of this mixture in twenty-three operations of different kinds, performed by Dr. Morse, of San Francisco, on patients of both sexes, and varying in age from seven to fifty-six years. In every instance the anæsthetic acted with extreme rapidity, and repeatedly, after a few deep inspirations, such a degree of anæsthesia was attained that pain was no longer felt, although reflex action was still maintained. In cases in which deeper narcosis was required, further administration of the mixture always removed any tendency to struggling. Children and young subjects were rendered insensible in a remarkably short time, but with drinkers the administration lasted longer. In not a single case was any marked excitement observed. With slight anæsthesia no change took place in the pulse and respiration. In instances of deep narcosis the respirations were accelerated, and the pulse frequency was diminished. In many patients the face became congested, and covered by perspiration. After a state of incomplete anæsthesia, the patient came to at once when the administration of the mixture had been arrested, and after a more prolonged and deeper narcosis there was for some time a quiet sleep, which, however, did not resemble in any way the deep coma observed after the administration of ether or of pure chloroform. Invariably the patient, in recovering from the effects of the anæsthetic, became conscious at once, and did not suffer subsequently from headache, vomiting, or nausea."

Notwithstanding such favourable reports the mixture has not met with favour from either British or American surgeons.

One of the difficulties of chloroform anæsthesia results from the uncertainty of the quantity necessary to produce complete anæsthesia. I have had a patient who was with difficulty recovered from the narcosis produced by three drops of chloroform, placed on a piece of cotton wool, which was put into a hollow tooth; whilst on the other hand an elderly woman, from whom recently I excised a small tumour, required four drachms of pure chloroform to produce anæsthesia. On this subject Mr. William Martin Coates, of the Salisbury Infirmary, contributes a valuable article to the *Lancet*, of the 23rd of December, 1882. He writes—“By repeated trials I have found that, by means of Snow’s inhaler, five minims of this anæsthetic (chloroform) followed by ten in twenty seconds, and in forty seconds by fifteen, and then fifteen every minute until the patient became insensible, and after—

wards an occasional ten minims were sufficient in almost every case to produce and maintain complete anæsthesia; very rarely twenty minims were required. It was found that when fifteen minims were put into the inhaler every minute during the inhalation, all the chloroform had evaporated at the end of that time. . . . Although I have, during these twenty-four years, never been prevented administering it by extreme age or infancy, by chronically diseased heart, lungs, or kidneys, I have not had a death by chloroform. Considering that I have been Surgeon to the Salisbury Infirmary during all these years, and have had during that period a numerous *clientèle*, this evidence will not, I trust, be considered unimportant. . . . During these twenty-four years I have never refused chloroform to any patient in whose case pain was anticipated. . . . Sometimes patients fancy that the mouth-piece of the apparatus will suffocate them; in such cases I sprinkle ten minims of the anæsthetic on a handkerchief, and when it begins to act return to the inhaler. . . . We all know that some patients are prone to be rapidly and profoundly affected by mercury, opium, and chloral hydrate, &c.—I am certain that some, and not a few, are dangerously affected by the usual doses of chloroform. . . . A young woman of twenty-four years of age was completely narcotised by five minims of chloroform. . . .

"It has been said above that I have not in one instance refused to give chloroform because of diseased heart, feeling that indications of danger would declare themselves in time to combat them. Two illustrative cases have occurred in private practice during the last four weeks. One was a gentleman on whom I performed lumbar colotomy; his pulse was very feeble and intermittent. The other case was an elderly lady, with tricuspid insufficiency very marked. . . . The old gentleman was given chloroform after my method, and when the pulse dropped at all twenty minims of ether were put into the modified Snow's inhaler."

The same method was adopted in the case of his lady patient.

That chloroform is the most suitable anæsthetic in cases in which cardiac troubles exist is the opinion of many distinguished surgeons. Dr. M'Guire and Dr. Chisolm, and many other eminent surgeons, have had patients suffering from cardiac troubles put under the influence of chloroform for operation. Similar is the experience of Surgeon-Major Lawrie,* Principal of the Hyderabad Medical School, who gave the results of the experiments conducted by him,

* British Medical Journal, 23rd of February, 1889.

for the Government of the Nizam, on the effects of chloroform as an anæsthetic.

The Commission consisted of Dr. Hehir, Mr. Kelly, and Mr. Chamarette, and as their conclusions, which differ from those of the Commission appointed by the Royal Medico-Chirurgical Society, and that appointed by the British Medical Association, and also that of the Boston Society for the Improvement of Medical Science, are strongly in favour of chloroform, even in cardiac disease, it may not be uninteresting to give the report as it appears in the *British Medical Journal* :—

“Dr. Lawrie said the experiments which have been carried out by the Commission. . . were, in his opinion, the most important that had ever been made, and had conclusively decided a question which had been in dispute ever since chloroform was first introduced. There was no doubt that anæsthesia produced by chloroform was best measured by its effect on the breathing, and that when the administration was pushed beyond a safe point the breathing became embarrassed, and then stopped. The question in dispute was whether chloroform ever effected the heart directly or not, and this was important in its bearing on the way in which the administration of the anæsthetic should be conducted.” To obtain evidence on this point “they killed with chloroform one hundred and twenty-eight full-grown pariah dogs, averaging over twenty pounds weight each. This does not represent a tithe of the experiments they actually performed, which really amounted to several hundreds, as they varied the dose and the method of administering the chloroform in every possible way, and tested the value of artificial respiration in nearly every case by reviving the dogs over and over again after the breathing had stopped, and before the heart ceased beating. What they found was, that no matter in what way it was given, in no case did the heart become dangerously affected by chloroform until after the breathing had stopped. This,” adds Dr. Lawrie, “tallies exactly with my own experience. I have given chloroform as often, or oftener, than any man living, and have never had a fatal case, and I can state positively that in the 40,000 or 50,000 administrations I have superintended, I have never seen the heart injuriously or dangerously affected by it. I take no credit to myself in this matter—I have simply carried out in India the principles Simpson and Syme practised and taught in Edinburgh.”

In selecting an anæsthetic the surgeon must be guided by the

case—there is no general anæsthetic. I believe that chloroform is the most generally useful; but there are cases in which—although the anæsthesia was produced by chloroform—it might with advantage be kept up by the use of ether, or the A. C. E. mixture.

If the anæsthetist is not familiar with the administration of chloroform it is unwise to allow him to give it. I have more than once had ether given simply because the anæsthetist had not been in the habit of administering chloroform. The anæsthetist accustomed to ether is apt to err, either by giving too much chloroform, or by giving it with an insufficient admixture of air, or by not giving enough of the drug, and stopping short of suspension of the reflexes. No person unaccustomed to the administration of anæsthetics should undertake the duty—their proper administration requires careful training and a proper knowledge of the agents for their efficient use. It is the want of proper training that has brought about a prejudice against chloroform—no active medicinal agent can be properly used by other than an educated administrator.

A knowledge of anæsthetic agents and their mode of administration is just as necessary as a knowledge of hypnotics. Students are trained to select and give hypnotics. Why do not the colleges insist on an equally careful training in the selection and use of anæsthetics?

Surgeons who recognise fully the great value of chloroform do not hesitate to acknowledge that it is not suitable for every case. Thus, chloroform is, in Dr. M'Guire's^a opinion, an unsuitable anæsthetic in cases where there is a nervously weak heart, or where the weakness results from fatty degeneration, or from loss of blood or great anæmia from other causes, and he further adds, that "of all the elements of danger, to my mind, from chloroform, fear on the part of the patient is the greatest. If the patient is, so to speak, in mortal terror of the anæsthetic the heart is nervously weak, and the hazard to life is especially great."

The influence of chloroform on weak hearts is, however, considered by Dr. Julian J. Chisolm^b to be wholly beneficial. He writes:—"Diseased conditions of the heart, regardless of kind, may make this important organ particularly susceptible to syncopetic influences, when reflex action has full sway; hence we find violent

^aThe Choice General Anæsthetics. Richmond. Oct. 1887.

^bChloroform, the Best of Anæsthetics. Baltimore. 1888.

emotional excitement a fruitful cause for mortality in the subjects of heart disease. Many such persons having to undergo painful surgical operations in former times, before the introduction of chloroform, suddenly collapsed with the first incision, and they *still die as of old when they are not properly protected by complete anæsthesia*. Should chloroform be freely given to patients with heart disease, regardless of kind, who must submit to painful operations for the cure of some surgical affection, *by its liberal use they are put in a condition of safety against all emotional and reflex annoyances*, without which they could not escape trouble.

"I look upon chloroform as the strong bridge which will conduct patients suffering from serious heart disease safely over serious operations. As a surgeon in large ophthalmic practice, I frequently am compelled to perform the most delicate and painful operations upon the eyes of timid patients suffering from heart disease in some one of its various forms. Cataracts occurring usually at an advanced age, most frequently between sixty and eighty-five years of age, are often associated with organic disease of the heart in patients enfeebled by senility. Prior to the introduction of cocaine, that wonderful local anæsthetic for eye-work, I never refused to give such patients chloroform; on the contrary, I urged its use. The only difference that I made in such cases over other patients was by exercising even more care in establishing the safe stage of complete anæsthesia through the liberal use of the drug."

The great advantages of chloroform are that it occasions no visceral troubles. It is true that in experiments on the lower mammals its repeated use is said to produce fatty degeneration of the heart, a statement not supported by the experiments of the Hyderabad Commission, nor has any case of fatty degeneration resulted from its use on the human being, as far as I know, been published. When the chloroform anæsthesia has been recovered from no ill results follow. A few cases of hallucinations, as recorded above, have been noticed, but they are too few to affect the general rule.

Of ether Dr. Julian J. Chisolm writes:—"Kidney diseases are referred to as a very dangerous element to be anæsthetised with sulphuric ether, and many operators examine with care the urine of patients prior to administering ether as an anæsthetic. Bronchial troubles are also considered antagonistic to the safe administration of sulphuric ether, not directly, but indirectly. In

such cases, after operation has been completed, and the resuscitated patient has been put to bed, a fatal pneumonia has developed, which follows too often the administration of ether to be considered a mere coincidence."

This statement agrees with that of Dr. Hunter M'Guire,* who writes;—"Clinical existence shows that, when the vapour of chloroform is withdrawn and consciousness returns, the patient is free from all danger from the anæsthetic. In ether, several minutes after the anæsthetic is taken away, and after all danger from the anæsthetic is supposed to have past, when all ether vapour we would think had escaped from the lungs, dangerous symptoms suddenly present themselves, from which the patient is with difficulty rescued, or even death itself takes place. Or, again, hours or even days after ether has been given, acute nephritis or pneumonia, directly traceable to the ether, occurs, threatening the life or causing the death of the patient."

Vomiting and troublesome hiccough are also some of the after-effects of ether inhalation, and occasionally, especially in cases of laparotomy in women, mania has resulted from its use.

However safe ether may be as an anæsthetic, the list of cases in which it is unsuitable is a formidable one. Dr. Dudley Ruxton,^b who is a strong advocate for ether, enumerates the following cases in which it should not be used:—

"(a) In protracted operations about the mouth, jaws, nose, or pharynx, which necessitate the mouth and nose being uncovered. Since consciousness rapidly returns when the supply of ether is discontinued, there is not time for prolonged surgical procedure.

"(b) All operations needing the employment of the actual cautery, or lighted candles, lamps, &c., in the vicinity of the mouth, ether being highly inflammable, and when mixed with air detonating, so that the incautious bringing of the apparatus near a light may lead to grave consequences.

"(c) Persons who are suffering from bronchitis, and those liable to that complaint; the emphysematous (if the condition be very pronounced), and as a rule asthmatics bear ether badly, since it excites cough, and may clog the bronchial tubes with a quantity of excessive secretion.

"(d) In renal disease, when extensive, ether is said to induce

* *The Choice of General Anæsthetics.* Richmond. Oct., 1887.

^b *Anæsthetics: their Uses and Administration.* 1888.

suppression of urine, so that if given at all in these cases it should be with the utmost caution.

“(e) The vascular excitement to which ether gives rise contra-indicates its use, for persons whose arteries are presumably brittle, or in whom circulatory perturbation is like to be harmful. It is obvious that when cerebral hæmorrhage from rupture of an artery has once occurred, ether might, by increasing arterial tension, induce a repetition of so dangerous an accident.

“(f) In infants and very young children ether sometimes produces great pulmonary trouble, from its irritating effects upon the delicate mucous membrane of the respiratory tract. However, with the exception of the conditions considered under (e), no hard and fast rule negatives the use of ether. Further, other anæsthetics may be contra-indicated, and then ether may be advisable, even in cases grouped under a, c, and d.

“(g) As ether always provokes rapid breathing and not infrequently coughing, it should not be used when these are prejudicial to the patient, or to the success of the operation.

“(h) The presence of brain tumours, intestinal obstruction, and cancerous tumours, is by some considered contra-indicatory of ether (Wood).”

Thus we find that if the respiratory, circulatory, urinary, and alimentary functions are normal, and that the patient is of middle age, ether is suitable; but supposing these conditions present, there can be no objection to chloroform.

Even in marked asthenic conditions, from whatever cause arising, complicated by any affection of the air passages, Dr. Frederick Hewitt recommends chloroform diluted with from one-fifth to one-eighth of pure alcohol as “the most appropriate anæsthetic to employ.”^a And in aberrations on the brain or its membranes he considers chloroform has many advantages over ether. And in “Affections of the Respiratory Passages and Pleuræ,”^b Dr. Hewitt writes:—“In this group may be included the following *obstructive conditions of the air-passages producing dyspnœa*—such, for example, as aneurism pressing on the trachea or main bronchi, tracheal stenosis, laryngeal disease with stridor, &c.; *advanced chronic bronchitis and emphysema*, with secondary cardiac changes; *chronic pneumonia*; *phthisis* in its middle or late stages; *pulmonary congestion and œdema* arising in the course of other diseases; *hydro-*

^a The Lancet. Vol. I., p. 1,013. 1888.

^b Ut supra.

thorax and pleuritic effusion; chronic pleural diseases, with secondary lung changes; and *empyema*. In all the above-mentioned morbid conditions the patient's respiration becomes more or less seriously affected, and chloroform is the most appropriate agent for producing anæsthetic sleep in patients of this group. . . . Cases of old-standing pleural disease, even though one lung be completely crippled, tolerate chloroform very well; in some cases there may be no thoracic expansion whatever, the breathing being wholly abdominal, and yet threatening symptoms are rarely met with when this anæsthetic is used. Whenever it is practicable, the patient should lie on his affected side, but I have known chloroform well borne even when patients have been lying the reverse way, with the affected side uppermost."

Of renal disease Dr. Hewitt writes:—"It must be borne in mind that most patients with Bright's disease suffer sooner or later with œdema, not only of the extremities, but also of the lungs and pleuræ; and such patients might, apart from their renal condition, be seriously affected by ether."

Reeves,^a comparing the effects of ether and chloroform, declares that "the accepted doctrine that there is an essential difference between the effect of chloroform and that of ether on the circulation rests entirely upon experiment with animals. It is not in accord with clinical experience. Sphygmographic tracings show depression always with the former, but not always with the latter. But of ten carefully-taken tracings during surgical anæsthesia from ether, in seven there was no difference between them and the curves observed under chloroform."

Dr. Reeves is a warm advocate for ether in preference to chloroform; therefore a few abstracts from his article on anæsthetics may not be out of place. He writes:—"Careful study of recorded cases shows that death from ether does not differ materially from that caused by chloroform, the chief point being that it does not occur so frequently by failure of the circulatory organs. The following propositions may be safely stated:—1. As with chloroform, sudden death during operation has been often unjustly attributed to ether. 2. No statistics exist upon which can be based a statement of the ratio of deaths from ether to inhalations, or as to the relative safety of the two agents. 3. Death never takes place from inhalation of air too fully charged with vapour of ether, as is the case with chloroform. 4. Reason,

^a Reference Hand-book of the Medical Sciences. Vol. I., p. 190.

experiment, and clinical experience concur in indicating that ether is the safer. 5. It remains an open question whether surgical interference during partial anæsthesia from ether is dangerous, as in the case of chloroform. 6. Death may take place under ether suddenly and by cardiac paralysis, the same as under chloroform. Clinical experience does not support the assumption that ether death is always by the lungs, and chloroform death always by the heart. This is true of animals under ordinary circumstances, but when the trachea is opened and pure ether vapour is carried directly to the lungs, death in them takes place by the heart, and that within a very short period of time. Death has thus been caused in dogs in sixteen seconds. Cases are on record in which sudden cessation of the heart's action took place under ether, and in which the death differed in no particular from a typical death from chloroform." And he adds that "in aged subjects a rapidly-fatal suffocative catarrh has sometimes followed the administration of ether." Need we be surprised that he adds—"Probabilities are favourable to the view that chloroform is safer than ether for the aged. He considers ether especially dangerous in cases of Bright's disease—a fact which, he states, was first recognised by Dr. Emmet. For valvular disease of the heart he considers chloroform the better anæsthetic, but in cases of fatty degeneration he prefers ether.

In a recently-published lecture by Dr. J. William White,* to the graduating class of the University of Pennsylvania, he says:—"There is hardly a case in which ether cannot be given with safety, but there are certain classes of cases in which there is special danger. These are—1. Very old people with emphysema, fatty heart, hypertrophy or valvular disease of the heart. 2. Persons with marked tendency to weak heart action or syncope. 3. Persons with extensive lung disease, or with lungs greatly tied down by old pleuritic adhesions. 4. Habitual drunkards. 5. Persons who, as the result of alcohol, syphilis, gout, rheumatism, or old age, have marked evidence of extensive atheromatous disease."

Thus we see that the consensus of opinion on both sides of the Atlantic is that there are a large number of cases for which ether is unsuited as an anæsthetic; and omitting the cases of nervous patients and those who suffer from cardiac asthenia, there are no cases in which ether may be used that chloroform is not equally suitable.

* Medical and Surgical Reporter. Vol. LX. No. 10. Philadelphia, Pa. March 9th, 1889.

The death-rate from chloroform is high; it is calculated as one in 525 administrations, a rate which appears too high in the presence of the following statistics, which were collected by Dr. Chisolm; and although some object to them because they are old, yet I fail to see how facts are invalidated by age:—"In the Edinburgh University two deaths have been attributed to chloroform, which, according to Ker, is one in 36,500 administrations. Grant wrote—"I have seen chloroform given in some thousands of cases during upwards of twenty years, both in hospital and private practice, without a single death, or even an approach to a fatal termination." Kidd, of London, had seen it administered upwards of 10,000 times, and had seen no fatal cases, either in his own case or in that of his friends. Dr. Bardeleben, of Berlin, had participated in its administration to over 30,000 patients before meeting with a death from chloroform. The French surgeons in the Crimea reported 30,000 cases of chloroform administered and not one fatal issue. In the English army in the Crimea chloroform was administered 12,000 times with one single death reported as attributed to it. Richardson had seen it administered 15,000 times before he met with his first fatal case. Billroth, of Vienna, had administered chloroform 12,000 times before he met with his first accident. Clover has recorded 3,000 without a single death."

In the Federal Service during the Inter-States War, chloroform was administered 80,000 times. In 37 cases fatal results have been ascribed to its use—a proportion of one death in 2,200 administrations.

In the Confederate Service, Dr. Chisolm writes, "Chloroform was exclusively used in a great many thousand operations without a death, as far as I am aware of or have been able to ascertain, after diligent inquiry among leading surgeons in the army."

Dr. Hunter McGuire, of the Stonewall Jackson Corps, records 28,000 administrations without a single death; and it is reasonable to suppose that Longstreet's corps had an equal number, as would also Joe Johnson's army. Dr. Chisolm had not a death in 10,000 administrations. Altogether he collected "an array of over 300,000 administrations of chloroform with 43 deaths, even attributing them all to idiosyncrasy, which calls for a most unbounded charity, and we have only one death in 7,000 cases. Can any stronger proof of the excessive rarity of the fatal idiosyncrasy in chloroform be needed?" To these may be added the 50,000 administrations superintended by Surgeon-Major Lawrie without

a single death; and when we, after reading these records, come on a percentage of one death in 500 administrations, nothing but unbounded charity can cause us to place the whole blame on chloroform.

ART. XXX.—*Professional Reminiscences.* By ANDREW K. YOUNG, M.D., F.R.C.S.I., J.P.; President of the Irish Medical Association; Surgeon and Medical Superintendent of the Monaghan County Infirmary; Consulting Physician to the Monaghan and Cavan District Lunatic Asylum.

(Continued from page 402.)

THE BANISHMENT OF BLOOD-LETTING FROM MEDICAL PRACTICE,
AND PROBABLE CAUSES THEREOF.

AMONGST the numerous changes and advances made in practice by the medical and surgical professions during the last fifty years, there is hardly any that has been more decided than the almost universal avoidance of phlebotomy. I have not read any essay—I have not even heard of such—to prove, not only its inutility, but its injurious effects on the human subject. The only reasons (and they are not so) I have heard advanced against a habit which had been adopted time out of mind, is a tirade against such as being destructive to life; but beyond the ancient quotation of “the blood is the life,” I never heard any philosophical reason made use of. There accompanied this, however, and does still, to no little extent, covert sneering at the universal blood-letting of the ancients, and that as such remedy of theirs was decidedly wrong, so must have been probably most of their practice in other respects. It is hard to believe that such men as existed in the past times could have gone on blindly persevering with a remedy to the destruction of their fellow-creatures, merely because it had been practised by their predecessors. It would have been much better to have spent some time in ascertaining what was the cause of such a departure from the ancient practice, than merely condemn it, because it does not seem applicable to the present time. That blood-letting was called for, and most extensively prescribed, fifty years ago, and even later, there can be no doubt. I have seen more quarts of blood taken in those days than thimblefuls—I might say drops even—in the present, and I can bear my personal testimony to the rectitude of both modes of treating disease. I do not now come

forward to find fault with the present very general opinion that to draw blood is tantamount almost to destruction of life; but I cannot avoid saying I have seen infinitely more lives saved than lost by venesection. To me it seems strange that these critics who so decidedly condemn the former in favour of the present theories do not seem to have considered that changes may have been going on gradually in the human constitution calling for new modes of treating the diseases to which mankind is liable. Is it not fair, before we condemn our predecessors, to look around us, and, if possible, ascertain have there been any, and what, changes in the circumstances surrounding our predecessors and ourselves, which, if discovered, might, in some measure, tend to acquit those we have succeeded, and by eliciting possible reasons for the change of remedies as at present used, thus in a great measure tend to acquit those who have passed away from having done wrong in their generation? It is not so long since great changes, atmospheric and terrestrial, have occurred, even in our own day, that we can forget them. A very few years (three or four) have passed by when we were almost witnesses of islands being suddenly swallowed up by the sea, new ones thrust up from the same depths, mountains settling down from their stupendous heights and losing the characteristic colour of their granite formation, and the entire face of a country hundreds of miles in extent being so changed that the inhabitants who survived and were again permitted to revisit the localities which they had been born in and inhabited for years, could not recognise the features of a country their ancestors and families had been in the possession of for generations. The very atmosphere surrounding ourselves, by which we breathe and live, has shown some constituents not recognised heretofore, so that the insect world has been greatly thinned. This is known by the absence of so many of our cheerful visitors of the swallow tribe and other tribes of birds at their usual migratory time. At the present, and during the last few years, we do not see one swallow for every ten or twenty we used to welcome in our summer season. The multitude of these creatures finding, no doubt, that the insect food on which they subsisted during their accustomed visits not being now produced in such quantities as to support them, or render it worth their while to undertake so long journeys for change of air, as was necessary for them possibly as for us, have wisely stayed at home or visited other and more genial localities. At all events, it is quite palpable that our country is not as

fashionable with them now as it was; so they have in great measure deserted us. In the presence of so great terrestrial changes as above mentioned, and which our striplings may remember, what are we, who creep on the surface merely as poor weak insects—what are we, I say, that we should presume that no changes are going on in our own constitutions? Have we not seen, at least many of us, the appearance of entirely new diseases amongst us? Now that I have mentioned this I must take up this part of my retrospect—and in this I am sure to be supported by the recollections of millions of my fellow-countrymen. When we were in expectation of the cholera visiting us, with what anxiety we read everything that was published respecting it; we were kept duly posted on its progress and its occasional benignity or virulence by the advices of the Government and the daily broad-sheets, and we eagerly pressed forward to furnish our houses and persons with the many nostrums which were published, under the assurance of their perfect efficacy in accomplishing a speedy cure, &c., &c. In no instance was blood-letting recommended (and that was at the time of blood-letting), and yet I remember one case where a man was stricken with the plague of cholera in the neighbourhood of the quay somewhere near Hawkins-street, Dublin. He was brought to hospital at once, bled and recovered. I never knew of another instance which was so treated. As “one swallow does not make a summer,” so this one case of bleeding was not followed by others, as far as I could learn. Now here was a disease of debility thrown upon us such as we had never encountered before.

The cholera was closely followed by another disease—both striking at the nervous system rather than the vascular. This latter, which might have been termed the *sthenic*, was encountered by bleeding, and all that line of practice, and most properly so; whilst the other, the new form of disease as instanced by cholera and the influenza, might have been termed the *asthenic*. It cannot be supposed, even by the most unbelieving of this day, that the names of such eminent men as our books are filled with were blind to the great changes so suddenly cast upon us, and saw very early the new form disease had taken. This change came upon the generality of the profession but slowly. One of the earliest cases made a considerable sensation; it occurred about forty miles from Dublin. A gentleman of considerable consequence was seized with severe illness. Two of the most eminent men in Dublin were summoned for consultation. They ordered bleeding. My late

friend, Dr. Brunker, who was the medical attendant, operated. He had not withdrawn more than four ounces when he called over Mr. Cusack and Dr. Marsh, who immediately stopped the bleeding. The gentleman died in a very short time afterwards—I think about or within two days. The death of this gentleman caused great sensation, especially as it was known such men had been in attendance; and I think this case caused a greater check to be observed in the use of the lancet than the deaths of a dozen of inferior rank attended by less eminent men. I have long looked upon the year 1832 as the date from which blood-letting became perilous; and from what I have above said my reason must appear obvious.

After all, the long-established blood-letting held its ground, and practitioners only slowly opened their eyes to facts which were daily obvious—that diseases which were palpably inflammatory did not now always recover after a decided venesection; but, somehow, after the blood-letting patients were in the habit of sinking suddenly, and dying from some inexplicable cause. It cannot be supposed that the names known to the world at the time I write of, as the great teachers as well as the leaders in our profession, were not early alive to the change which came upon us, and altered their practice accordingly. Having had close intercourse with some of the eminent ones, I was early warned of the dangers attending that practice which we had hitherto considered our sheet anchor of safety. Consequently, my mind was occupied frequently with the cause of this wondrous change. Often I reflected on what could have so decidedly caused it. I called to mind that when walking in London in 1832, I think, during the summer, in very hot weather, I was surprised at feeling excessively *weary*. I had never experienced this sensation previously. I had been often tired and fagged by over-exertion, but never *weary*. My feet got on a bit of grass in one of the parks, which produced a feeling of happiness. I got to my bed early that night, and slept soundly. On awaking in the morning I remained still for a few minutes. On trying to turn over on my right side I was unable to do so, owing to something lying very close to me and unyielding as a wall. I reached my left hand across to ascertain the cause, and found a body lying quite close to me. I endeavoured to rise up in bed, and discovered I was unable to do so, or to raise my head or right hand, or stir the right leg or foot. I tried to pinch myself with the left hand, which I accomplished

to my conviction, but, to my dismay, at the same time I found I was bereft of feeling in the right side. I was horrified—assuring myself that I must have had a hemiplegic seizure in my sleep. I remembered I had not any card of address, no letter in my portmanteau, nor anything by which my home address could be ascertained. I thought I would probably be found towards evening by the kind people with whom I lodged; that, not being able to ascertain anything of me, they would necessarily apply to the police, who, on being baffled in the same direction, would convey me to some hospital, where I would very probably die, and being then buried as unknown, my family would never hear of my death, and naturally come to the conclusion I had fallen a victim to some of the many accidents or attacks for which great cities are renowned, and thus be disposed of.

Whilst these thoughts occupied my mind for, I should suppose, nearly an hour, I felt a sudden sharp sensation in my right foot; this in a few minutes afterward was succeeded by a similar one somewhere between my jaw and shoulder, and this again by two or three similar stings in different parts of my person.

The hope sprang upon my mind I was about to undergo the pin and needle sensation so familiar to those whose limbs occasionally “go to sleep,” as it is called. The “pins and needles” came on with a vengeance, and I endured their stings in the neck, head, face, sole of the foot, hand, and the entire right side of the body (a dreadful agony), with a sensation of thankfulness and joy. I had presence of mind sufficient to remain quiet after the agony subsided, until I found I had perfect command of all my limbs. I then rose, and the first thing I did was to write my name and home-address in full, and pin it carefully over the mantelpiece. When I got home, which I did the day following, I was amazed to find by the papers a new disease had broken out in London. The banks were deprived of nearly all their clerks, the houses of business, employing many hands, at a stand-still; trade, and all places where many individuals were daily employed had merely to content themselves with some one of the establishment watching in their places of business, and noting the diminished populace pass by them.

There was much jubilation over the disease. The professionals said, “Every one is affected; all very unwell, indeed; yet, strange to say, no deaths or next to none, excepting the very old or debilitated.” I then found I had been knocked down by the

influenza (the name they had finally settled upon) amongst the first in the great city. This disease I did not hear of in Dublin until about a week or ten days after my coming home. I shall never forget the almost helpless debility I suffered under for nearly a month. It was five or six weeks before I regained my former strength. I had to help myself round a room by the aid of the furniture. I received no help from wine or quinine.

Now here was a new disease upon us—for the curious in such matters had to search back for nearly 100 years to find any analogous ailment. The first attack was usually made suddenly and with great violence on the nervous system, and the debility that marked where it had been, lingered in the constitution some time—generally for five or six weeks. Healthy and robust people had shaken off the effects in about three weeks, but I have known some men who did not think they ever quite recovered their former vigour. These two debilitating plagues came upon us at no great distance of time from each other. They seized upon all classes, sexes and ages alike—the well-to-do were not more exempt from these seizures than were the impoverished and needy. To those who observed them, and had lived years before either of them appeared, the change in the constitutional powers of man seemed obvious for a long time. But very many individuals existed in our midst who were blessed with great power of resisting the attacks of cholera and influenza; therefore with some, it is not to be wondered at, the old practice continued, with but little variation, until the frequency of such cases, or similar ones as above related, called the attention of even the lower order to the fact that death followed more frequently after bleeding than was usual in their younger days, and the practitioners soon learned a lesson that caused them to consider their former successful practice was looked upon by the public as doubtful. So the banishment of bleeding went on from year to year, until the very memory of it seemed almost forgotten.

Some years ago—about six, I think, or probably more, say 1880—a faint whisper was occasionally heard; it was uttered with bated breath, that possibly blood-letting was too much neglected lately. A little afterward this sentiment was uttered more distinctly; then the air seemed, as it were, thickening with the whisper; and now it finds a voice from some of our most respected practitioners—the fear of the utterance passing away from the observant and thoughtful.

That bleeding, even at the present day, may be had recourse to for the saving of life under great extremity I have shown to many, and look back with pleasure to some instances where I interposed bleeding between the patient and the poultice to the salvation of life, which otherwise must have been lost. In writing this I hope I will not be misunderstood as seeking to recommend a practice so long given over, but merely to call attention to the fact that changes seem again to indicate their approach. The professional practice of blood-letting prior to 1831-32 was carried on to such an extent as would appal the practitioners of the present day if well related to them, and yet it was eminently successful. Living in those days I do fearlessly assert it was demanded at that time, and I have seen more lives saved by such than by any other mode of practice. Thus if the depletion of the time I allude to were followed since 1832 to the same extent, the results would have been fearful. The sagacity of the profession saw the necessity of the change, and they had no hesitation in adopting it at once; and so the present is the system best adapted to the time. I am very anxious, however, that we shall not rush blindly onward because we have been so successful for more than half a century, and that we should not close our eyes to the efficacy of blood-letting on certain occasions.

I have very pleasing recollections of many valuable lives I have saved by fearlessly adopting the method now so much feared, and I am happy to say I have converted some of the profession to my views, and that when the case requires to be so treated, under the exercise of a sound judgment, blood-letting may occasionally be had recourse to with as much safety and success as it was sixty years ago.

Some years ago an aged man, upwards of seventy, came to me one morning. I desired him to be seated. Whilst sitting on a chair and speaking to me he suddenly began to hawk up blood from the chest. The sputa were rapid, succeeding each other with alarming rapidity, each mouthful brought up a large tablespoonful of fluid blood, until there lay more than a pound on the floor before him. I said to a gentleman, "Please take blood from the poor man, or he will die before our faces." The young gentleman did not know how to commence doing so; he was just from completing all his examinations. I opened a vein in the arm freely. In a few moments the pulmonary hæmorrhage diminished, and then ceased. The man, after resting on a bed for a little, walked

home, about half an English mile of considerably rising ground. This was his first attack. He never had another. He lived in my service for several years afterwards, and died from very advanced old age. On making some practical observations thereon I was met by my young friend saying, "Yes, there is no doubt the hæmorrhage was arrested by something, but if it was by the lancet he will die of some other disease the consequence of that bleeding." This represents one of the many instances I have met with of the unerasable impression a brilliant lecturer can make on the brain of an inexperienced pupil.

I was called to see a fine young labourer, who had been sinking a flax drain the day before, and up to his knees the greater part of the day in water. He went home, coughed all night, became very ill in the morning, and was sent to hospital. The physician of the fever hospital told me he did not think it was fever, but probably diphtheria. On walking up the stairs, and hearing the respiration, I said, before seeing the young man, "This is a case of acute laryngitis." It was so. It was painful to see the struggles for breath in the middle of a large ward. I spoke to the man, and in as few words as possible told him of his danger and what I intended doing to save his life, which I would with God's help, provided he made no opposition to me. I sent home for the silver tubes; and, as he could not stretch his head backward sufficiently to enable me to perform laryngotomy without suffocating, I tied up his arm and drew upwards of 3xx. of blood, *plenorivo*. He expressed himself thankful for the breath I had given him. With a blue pencil I marked the line from the pomum downward. I put the tube in my mouth to take the cold off it, and in less than a minute I had it placed in the windpipe in the crico-thyroid space to the poor fellow's great comfort and relief. I then brought him in the carriage, and had him put into a warm bed in the Infirmary, from which he was discharged cured in thirty-four days. He lives in Monaghan at present, and is in excellent health.

About a year or so after this I read in one of the newspapers of a baronet having been very suddenly seized with the same disease, which was so acute he ran great risk of suffocation—so much so that his two medical advisers who were present felt called on to perform laryngotomy at once. They did so, but unhappily the gentleman died in the operation. I had no further account than this. I presume this may have been a case quite similar to what I related above, and, if so, here is an instance of the necessity of

our putting aside the prejudice against bleeding. All around me looked upon the case I operated on as being hopeless, not only on account of the suffocation, but of the bleeding from the arm. If the London case reported was as mine, it is a pity our prejudice against the simple operation of phlebotomy is so strong.

I could relate other cases, but I have said quite enough to show that lives may be saved by operating at the proper time, and that the further we remove from 1832 the more safety there is in the operation.

In writing the above I find I have more moral courage than I gave myself credit for. I have felt nervous at the silence of the profession on this for years past, and have introduced a topic which I have found so many loath to discuss, but I have done so in the veracity of good faith; and I hope this ice I have dared to break may cause some sparkling opinions to bubble up through the opening I have made, and render us less reticent in discussing a subject of such vital importance to our fellow-creatures and ourselves.

TOTAL EXTIRPATION OF THE LARYNX, WITH RECOVERY AND A USEFUL VOICE.

DR. GREVILLE MACDONALD and Mr. C. Symonds reported a case of total extirpation of the larynx to the Clinical Society of London at their meeting on the 26th of April, 1889. The patient, a man aged forty-one, suffering from a large, irregular, lobulated greyish-pink neoplasm occupying the anterior three-fourths of the rima glottidis. Portions of the neoplasm nipped off, through the mouth, showed that the growth was an epithelioma. Six months after he had come under notice Mr. Symonds was called on to operate. He slit the thyroid cartilage and removed the growth, which, however, recurred, and on the 22nd of December, seven weeks from the first operation, the operation of total extirpation of the larynx was undertaken. Ten days afterwards he was up and about. Four months afterwards there was no sign of recurrence, and he spoke in a low, distinct, but gruff voice. The artificial larynx, obtained from Vienna for the patient, was found to be most unsatisfactory. [Billroth is credited with being the first surgeon to attempt extirpation of the larynx (1873). In 1885 Hahn tabulated seventy-four cases of complete excision and ten cases of partial excision. The result hitherto has been very unsatisfactory and the mortality very high.—Ed., *Dub. Jour. Med. Science.*]

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Lectures on Pathological Anatomy. By SAMUEL WILKS, M.D., F.R.S.; Consulting Physician to, and formerly Lecturer on Medicine and Pathology at Guy's Hospital; and the late WALTER MOXON, M.D., F.R.C.P., Physician to, and sometime Lecturer on Pathology at Guy's Hospital. Third Edition. Thoroughly Revised by SAMUEL WILKS, M.D., LL.D., F.R.S. London and New York: Longmans, Green, and Co. 1889. Pp. 672.

THE second edition of this standard work having been for some time exhausted, Dr. Wilks was induced to take the preparation of the third edition into his own hands, rather than to entrust it to some more junior man. He felt, as he states in his Preface, that a younger man, while in the possession of considerable histological knowledge, might introduce this at the expense of the more general descriptive nature of the book which he had striven to make, and which had always been regarded as its distinguishing and most valuable characteristic.

Drs. Wilks and Moxon have had an extremely wide experience in the *post-mortem* room of Guy's Hospital, extending over many years. This work is in no way to be looked upon, as some other works on pathological anatomy must be, merely as a text-book of morbid histology. It might rather be designated a pathological handbook for the *post-mortem* room, for the hospital ward, and for the operating theatre; and it is in this wide and comprehensive scope that we see its chief excellence. While we value as highly as any do the knowledge that has been acquired by the use of the microscope, we fear there is a tendency nowadays to exalt unduly morbid histology at the expense of morbid anatomy, and apart from clinical medicine and surgery. It seems to us that the opinion is sometimes held that if the shape of the cells in a growth is discovered nothing further remains to be learned. Pathology should always be studied, as Drs. Wilks and Moxon have done, both before and after death—both in the ward, in the *post-mortem* theatre, and in the laboratory.

This work represents the course of lectures on pathology that was delivered in Guy's Hospital many years ago, many additions and alterations being introduced to keep pace with the advance of pathological knowledge. The influence of the lecture-theatre is apparent all through it, and constant reference is made to the wards and museum of the hospital. In two respects we think that this spirit of the lecture-theatre has been carried almost too far. In the first place, although reference is freely made to the views of other pathologists and physicians, yet there are, we may say, no references to their works and publications where these views may be studied at greater length. In a handbook for students a large number of references are out of place, but this work is too large and too important to be looked on merely in this light. We think that its authors might have increased its usefulness had they inserted, in foot-notes or elsewhere, a full bibliography. In the second place, there are no figures or illustrations. If a student or practitioner is attending a course of lectures well illustrated with diagrams and specimens, or if he has several illustrated works on the same subject to refer to, he will not feel any loss in this absence; but if anyone attempts to make up the morbid anatomy of any subject from verbal descriptions alone, he will soon feel the absence of good figures.

Almost every known disease is referred to in this work—both medical and surgical, and those relegated to the domain of specialists. Some of these last diseases are treated of very briefly: thus, there is very little information to be obtained on diseases of the eye, ear, nose, or skin. Curiously enough, the thyroid and thymus glands are included in the section on skin.

As might be expected from the fact that this is not a new work, but a new edition of an old one, the microscopical sections are the poorest, and do not give as clear and vivid a description of morbid histology as might be wished for. Recent advances in bacteriology are referred to, but in a tone as if Dr. Wilks was not quite sure whether to believe in them or not.

In the section on typhoid fever we are glad to find the following statement:—"We must note that in old cases of typhoid ulcer—as, indeed, in all long-standing ulceration of the bowel—the ulcer spreads transversely." This appearance, which we have ourselves several times noticed, is not, we think, sufficiently well known.

The remarks on the difficult subject of the relations between the varieties of Bright's disease are, on the whole, very good. We

read—"It should be said that those who believe all the forms of Bright's disease are but stages of the same nephritis would not necessarily maintain that the one passes into the other; that the red granular atrophied kidney had at one time been large and white; but that the initial inflammatory process had been the same, and then taken two directions, the one towards the development of the larger form, and the other towards the slower and atrophic variety."

In the description of alcoholic cirrhosis we meet with the statement that "in the majority of cases of cirrhosis the liver remains larger than natural." In Dublin, although some livers affected with this disease are much enlarged, certainly the majority are diminished in size. Probably this difference is owing to the fact that the cirrhosis in London is largely due to the consumption of beer, and there is a considerable amount of fatty infiltration of the liver; while in Dublin, the alcohol being in the form of whisky, there is little or no fat deposited in the organ.

We are surprised to find that papillomata are completely omitted from the classification of tumours, though papillary tumours of the skin and other surfaces are mentioned in other parts of the book. Do the authors consider that papillomata are not true tumours?

The language employed is generally clear and good. Occasionally, however, the descriptions of diseased organs fail to give as clear an idea of the appearances as might be. Here and there a curious expression is found—*e.g.*: "The morbid anatomy of mumps is not very pronounced."

We are glad to see this book reprinted in a third edition. It must be considered a very valuable work, not so much on account of many new or original views or elaborate histological investigations, but because it contains the authors' personal observations in the wards, in the *post-mortem* theatre, and in the museum; and personal observations by thoroughly skilled observers are always welcome.

Archives of Pediatrics. Vol. VI. No. 64. April, 1889. Philadelphia: J. B. Lippincott & Co. 1889.

THE April number of the *Archives of Pediatrics* comes to us increased to eighty pages, and is especially interesting and attractive. It contains, besides the regular monthly contributions by Jacobi on the "Therapeutics of Infancy and Childhood," and Forchheimer on the "Medical Diseases of the Mouth," Townsend

on "Acute Lobar Pneumonia in Children," Seibert on "Stomach Washing of Infants," an interesting article (illustrated) on the latest procedure in the treatment of gastro-intestinal catarrh, Baruch on the "Treatment of Incontinence of Urine," Earle on "Diphtheria in Chicago," Keating on the "Differential Diagnosis in the Fevers of Childhood," and a large number of brief, practical abstracts from the German, French, and English medical journals of the day.

On Bacillary Consumption: its Nature and Treatment in the True First Stage. By HORACE DOBELL, M.D. London: Smith, Elder, & Co. 1889. Pp. 138.

IN this work Dr. Dobell attempts to reconcile his old views on consumption with the recent knowledge on the bacillary nature of this disease. He admits that the bacillus is one of the irritants "capable of setting up the formation of an abnormal conglomeration of matter such as we are accustomed to call tubercle;" but he seems to admit also that there is a consumption which does not depend on the agency of bacilli. The true first stage, the nature and treatment of which are the principal object of consideration, he looks on as being analogous with the interval which elapses between the injection of tubercle bacilli into an animal and the first discoverable formation of tubercle. Its nature, however, does not seem very clear, and we think we may do best by quoting the very words of the author. He says:—

"It will be seen from the foregoing recapitulation that pulmonary phthisis, preceded by constitutional decline, is to be accounted for by either of the following ways:—

"1. By direct admission of bacilli to the general circulation, and some *unknown influences* there, antecedent to their localisation in the lungs, of which we have no reliable evidence.

"2. By a defective absorption of fats, due to choking, &c., of the lacteal and lymphatic system by bacilli, admitted by the alimentary portal, and afterwards conveyed to the lungs, there to become domiciliated and produce tubercle.

"3. To a defective supply of fats, due to defective pancreatisation, leading to the molecular disintegration of proteids, the *débris* of which may constitute the special food for tubercle bacilli, determining their *habitat*, in the parts where such *débris* are to be found—such parts, as we have seen, being especially and primarily the lungs and mesenteric glands.

"Or 4. To the production of such *débris* in the manner described by Selmi, Gautier, MacMunn, A. M. Brown, Aitken, and others. 'The possibility,' says Brown, 'of their being formed within the living tissues independent of bacterial fermentation is quite within our conception.'"

It would appear, then, that the first stage may be either the period in which bacilli are already within the body but have not yet taken root and commenced to grow, or a period prior to their introduction, when, by other agencies, conditions are being formed which will favour the growth of the bacilli when introduced.

For the arguments and speculation on which these views are founded, as well as for the treatment, we must refer to the work itself. The treatment is active and incessant, for Dr. Dobell thinks "Let well alone" is a wretched axiom for the physician. He should always be on the watch to do better."

The book is written in a pleasant, lively style, and although we are far from agreeing with the views of the author, we must admit that some valuable hints as to treatment may be found in the volume. We, however, regret to see a list of Dr. Dobell's works, with laudatory notices, many from non-medical journals, bound up and pagged with the text.

The Treatment of Epilepsy. By WILLIAM ALEXANDER, M.D.
Edinburgh and London; Young J. Pentland. 1889. Pp. 220.

DR. ALEXANDER, as is known, published some years ago a report on the results which he obtained by ligature of the vertebral arteries in cases of epilepsy and other nervous diseases. These results seemed at first encouraging, but the hopes raised were not fulfilled; relapses occurred, and the author thinks that this chapter of inquiry may be closed. It is interesting to notice that in one case of locomotor ataxy great temporary advantage resulted from the operation. The pains and ataxy rapidly diminished *for a time*. Will this be the history of the now fashionable treatment by suspension?

Nothing daunted, Dr. Alexander continued his investigations, and by theoretical considerations was led to believe that through the agency of the cervical sympathetic nerve, he might influence that condition of the brain or lower parts of the encephalon which by their abnormal action cause the epileptic attacks. For these theoretical considerations we must refer to the book itself. The result of his reasoning was that he undertook the formidable

operation of removal of the superior cervical ganglion on one or both sides, and he reports 24 cases in which this procedure has been carried out. Of these 6 are cured, two improved, especially in mental condition, five remain unimproved, none have been made perceptibly worse, two died after the operation, but not from its direct effects, and concerning one there is no information. The cures are thus 25 per cent.

The effects which were observed to follow this operation are remarkable, and differ in many respects from those seen in animals. When one ganglion only was removed there was contraction of the pupil and drooping of the upper eyelid. When the opposite one also was removed the inequalities disappeared, and it was impossible to say that the cases had been operated on at all. Retraction of the eyeball occurred only in one case. The effects on the eye were more marked after removal of the ganglion than after mere division of the inter-ganglionic nerve-cord. The influence of light, accommodation, atropin, &c., on the dilatation and contraction of the pupil was unaltered by the operation. There was no increase of the secretion of the lachrymal or mucous glands, no trophic changes, no alteration in the pulse in the temporal artery, and little or no reddening or increase of temperature in the face. These results agree pretty well with the phenomena witnessed when contraction of one pupil is produced by pressure on the sympathetic by an aneurysmal or other tumour. It must have struck everyone in these cases, where from the pupillary phenomena we must assume that conduction in the sympathetic is uninterrupted, yet that the other symptoms are much less than we should expect, judging from what occurs in rabbits after division of the cervical sympathetic.

In discussing the influence of the reproductive organs in the production of epilepsy, Dr. Alexander tells us that in four cases, with the patient's consent, he produced atrophy of the testicles by dividing the spermatic cords. In none of these did any benefit result. He thinks that masturbation is not a cause, but often a result of epilepsy.

A case is recorded in which, after ligature of both vertebral arteries without result, a cure was effected by restoring to its normal position a misplaced uterus by shortening the round ligaments.

From the chapter on trephining in epilepsy we would gather that the results of this operation are not very favourable, and in

the cases in which it was performed by the author relief only was obtained. In considering the medicinal and dietetic treatment of epileptics, Dr. Alexander takes the opportunity of protesting against the abuse of bromide of potassium which is so commonly witnessed. A curious method of treatment by rather violent percussion of the spine and adjacent muscles is recommended. It is supposed that the normal contractions of the spinal muscles must help the circulation in the venous sinuses of the cord. That as most epileptics become indolent and take little exercise, this assistance to the blood-flow is lost, and it was hoped that it could be replaced by percussion of the muscles. The results so far do not appear very encouraging, but Dr. Alexander thinks that if more efficiently performed the treatment may be of service. In his large experience he has never observed *zona epileptica* in the human subject.

In the chapter on the general management of epileptics attention is strongly drawn to the unfortunate position which these patients now occupy—the impossibility of getting for them any employment, and the complete want of any suitable provision for enabling them to get whatever good is possible out of their lives, while at the same time they might receive that medical care which they require, and which alone would give them a chance of recovery. Dr. Alexander made a visit to the home for epileptics at Bielefeld, in Westphalia, and gives a most interesting description of this establishment. In it the epileptics live about in houses, and are classified apparently according to their occupations. All work who can, and their attendants and overseers live among them, and are their companions rather than their keepers. The establishment is in the form of a little village, without walls or anything which would suggest imprisonment or loss of freedom. The results as regards the happiness of the inmates are all that could be hoped for; but there is a want of well-directed medical effort to cure or alleviate the disease, and the home has more the aspect of a religious than of a medical establishment. In Liverpool a home has been established, mainly through Dr. Alexander's exertions, where the advantages of Bielefeld are to be combined with all that medical science can do for the elucidation and cure of the disease. For further particulars regarding this noble and truly philanthropic enterprise we must refer to Dr. Alexander's book, wishing him most cordially that success which his energy and enthusiasm so well merit.

The concluding chapter is on the morbid anatomy of epilepsy, and is not much more encouraging than other chapters on the same subject usually are. It is satisfactory to see that of all the cases examined there was only one which could possibly have benefited by the operation of trephining.

Diabetes: its Cause and Permanent Cure, from the Standpoint of Experience and Scientific Investigation. By EMIL SCHNÉE, M.D. Translated from the German by R. L. TAFEL, A.M. London: H. K. Lewis. 1889. Pp. 215.

THIS work, dedicated to Prince Hermann of Sachsen-Weimar-Eisenach, professes a great deal. In 1881 the author discovered the real cause of diabetes, and not only this but the method of cure. In this volume are contained not only these discoveries but "everything of importance which has thus far been written and found out concerning diabetes and glycosuria." The work is intended not only to instruct the student, to afford the busy practitioner a clear insight into the true nature of diabetes, "but specially do I feel happy at being able to minister comfort to those afflicted with this malady: to instruct them concerning their bodily condition, which has hitherto been regarded as perfectly hopeless; and to hold out to those among them who are reasonable and brave the prospect of a lasting cure."

We turn, then, with some interest to the chapter on *Ætiology*, and find the remarkable discovery of the author thus given:—"Diabetes is a hereditary, constitutional disease; and the *ætiological* element of this disease is lues contracted by some ancestor." It strikes us if lues contracted by some ancestor, however distant, is the cause of diabetes, that it is curious why everyone is not diabetic. As a specimen of the grounds on which Dr. Schnée's opinion is based, we may quote the following:—"Every patient whom I suspect of diabetes I ask to undress, and I first of all endeavour to examine his skin—an element of diagnosis on which heretofore no physician has laid much stress. Marks of hereditary lues, and therefore of importance to me, are the so-called beauty spots, warts, deposits of pigment, rank growths of epithelium, white spots on the finger-nails, gouty deposits in the joints of the fingers and toes, especially in those of the big toe; further, barky epithelial growths in the feet, &c."

As to treatment: "*Healing*, in the modern sense, means maintain-

ing in a normal condition the change of substance (? *Stoffwechsel*), regulating that change where it is disturbed, and directing it again into its proper channels. This is the fundamental principle of my therapeutics in all specific diseases, and particularly in dealing with diabetes."

This is accomplished by various means. The patient must spend the winter in the "sunny lively Riviera," where Dr. Schnée is Physician of the Imperial and Royal Consulate of Austria and Hungary at Monaco; and in summer he must go to Carlsbad, where Dr. Schnée is Consulting Physician; while midway he may patronise "the superbly-situated Hotel Belle Vue au Lac in the mild and cheerful Zürich," the connection of which with Dr. Schnée is not very apparent. He may take exercise, wash his teeth, attend to his skin, but (in capital letters) "I never allow anyone to bathe in a bath tub." As to diet, in place of an abstinence cure, a nourishment cure is recommended, the details of which are set forth at great length.

Finally cases are given, needless to say, of the most satisfactory character.

This book, written evidently as a trade advertisement, deserves the highest condemnation of everyone who has at heart the dignity and honour of the medical profession.

Cásga. By IVANIONA. London: Simpkin, Marshall & Co. 1889. 8vo. Pp. 219.

THIS shilling "Shocker" or "Dreadful"—for such it is—appears to us to be one of the most unlikely stories that has ever been written. Love, treachery, falsehood, forgery, immorality, fiendish cruelty, brutality, murder, and suicide are all jumbled together in the most approved novelette style. The tale, no doubt, ends happily; but it does so in consequence of the almost wholesale slaughter of the chief *dramatis personæ*, and even the two who do survive have had hair-breadth—some would say, miraculous—escapes.

The heroine, we are told, is called "Cásga," because she was born on Easter Day, and the word signifies "Easter" in the Irish language. It may do so by a poetic license, to which, perhaps, the authoress is entitled, but the Irish word is "Caisc"—not "Cásga."

But what we, as medical reviewers, are more immediately concerned with is the very ungenerous and absurd portraiture of

the medical profession which sullies many pages of the work before us. A brutal and sensual husband succeeds in having his unhappy and distracted, but perfectly sane, wife immured in the living tomb of a private madhouse, and how?

"The most skilful cerebral (*sic*) physicians were called in consultation." . . . "One day she was ushered without warning into the presence of several strange gentlemen, who regarded her with mingled glances of admiration, curiosity, and pity. Then her terrible fate dawned upon her. She found herself entangled hopelessly in the meshes of the net, woven round her by her cruel enemies. . . . She tried her utmost to keep calm, and tell her entire story with quiet earnestness, but when she felt all that depended upon that interview, and how these men held her future fate in their keeping, her brain almost reeled, and her heart died within her. At length her tale was finished, but she felt that her doom was sealed. She read the awful truth in the faces of her judges. . . . She knelt in her anguish before them, and implored them, if they had the hearts of men, to listen and believe her. The more excited she became, the more determined grew the doctors of her insanity, and of the necessity for immediate steps being taken. But one medical man, who pitied the wretched woman from his heart, suggested to his colleagues to give her a last chance—to send for the infant, and see if Nature would assert her power and restore the mother's brain."

Her husband's paramour and *her* child were then introduced, and—

"The effect upon her was appalling. An icy horror seized her, and she shrieked to them to remove from her sight the beings who tainted the very air she breathed. No further evidence was necessary in the opinions of the physicians; and, summoning some strong, muscular nurses, who had been secretly in waiting for the verdict, Cásga was overpowered and borne from the room." (Page 112 *et seq.*)

Cásga is then conveyed to Dr. Bustock's "Mental 'Maison de Santé,'" as "only a slight case of 'puerperal mania' which will rapidly disappear." But this would not suit Lord Waldeck (Cásga's husband) or Dr. Bustock, who observes to his Lordship: "We are under surveillance by the Lunacy Commissioners." The pair accordingly prepare to deceive the said gullible Commissioners at their periodical visit to the "Maison." Just before they are expected, "Rosa and her infant" are again brought upon the scene—

"The revulsion of feeling is too much for Cásga in her enfeebled state. Her eyes blaze with fury; her delicate cheek is dyed with the

purple stain of shame and indignation ; her voice is hoarse with passion as she commands Rosa and Lord Waldeck to quit her presence."

At this supreme moment—

"Dr. Bustock hurried in, followed by several grave-looking gentlemen. . . The Commissioners of Lunacy gazed mournfully upon the lovely woman, who seemed consumed by dangerous maniacal rage. Her very lips were flecked with foam as she strove to utter her appeals to be freed from the presence of the beings she so loathed."

Needless to say that the Commissioners were as easily and completely deceived as "the most skilful *cerebral* physicians" had previously been.

Shortly after the Commissioners had been disposed of, Cásga is doomed to death by being placed in a ruined cottage—Dr. Bustock remarking to Lord Waldeck that "the last patient placed here 'died very quickly,' but then she was consumptive, poor lady." The doctor gets a cheque for £5,000 from his lordship, and "in a few days after, Cásga was consigned to dwell within the damp and life-sapping walls of the fatal habitation." Fortunately for our heroine, Dr. Bustock soon afterwards dashes his brains out by falling down a stone staircase while in pursuit of another sane victim, whom he has been torturing to death in "the fatal prison-house"—"the dreaded closet where stands the electric machine and powerful battery"!! We are told that "his skull struck the sharp edge of the final step, and those brains (? how many) which had plotted such wicked mischief against many innocent human beings were scattered upon the flags!" And thus our worthy *confrères*—the skilful cerebral physicians, the Lunacy Commissioners, and last, not least, Dr. Bustock, all vanish from the scene.

"Mrs. Bustock disappeared mysteriously"—Rosa died of consumption—Lord Waldeck is murdered by Rosa's father, who has already flung her child under the wheels of a passing hansom, and who finally commits suicide; and so the stage is cleared for "a blissful reunion" between Cásga and her first love—Arthur Walpole.

So ends this novel, in the pages of which—will it be believed?—Scripture is freely quoted. We would have disdained to notice the book in these pages, had it not been for the slanders on the Profession which it contains. It is rumoured that the authoress—Ivaniona—is an Irishwoman; if so, we are sorry for it.

PART III.

HALF-YEARLY REPORTS.

REPORT ON PUBLIC HEALTH.*

By SIR CHARLES A. CAMERON, M.D., D.P.H. (Cambridge); M.K.Q.C.P.I.; Past President and Professor of Hygiene and Chemistry, R.C.S.I.; President of the British Public Health Medical Society; Vice-President, Institute of Chemistry; Vice-President, Society of Public Analysts; Examiner in Sanitary Science, Cambridge and the Royal Universities; Medical Officer of Health, Dublin; Hon. Member, Societies of Hygiene, France, Belgium, Paris, Bordeaux, &c., &c.

1. Vulvo-Vaginitis in Young Girls.
2. Hæmoglobin Bacterium of the Ox.
3. Tuberculosis in Fowls.
4. The Antiseptic Properties of the Creolins.
5. Nature of Myxomycetes.
6. Mortality in the French Army and Navy.
7. French Hygienic Essays.
8. Infectious Nature of Traumatic Tetanus.
9. Vital Statistics of Berlin and Brussels.
10. Chemical Composition of Man.

VULVO-VAGINITIS IN YOUNG GIRLS.

DR. RICHARD POTT, in the *Jahrbuch für Kinderheilkunde*, 1882, t. XIX., p. 71, called attention to what he believed to be a contagious form of Vulvo-Vaginitis in young girls. A paper on this subject also appeared in the *Revue Mensuelle des Maladies de l'Enfance*, No. de Juin, 1888, p. 263, under the signature of Dr. A. F. Suchard. Lastly we find the subject discussed by Dr. Auguste Ollivier in the *Bulletin de l'Académie de Médecine de France*, for October 23rd, 1888. The disease is believed by those authors to be propagated

* The author of this Report will be glad to receive any books, pamphlets, or papers relating to hygiene, dietetics, &c. They may be forwarded through the agencies of the Journal.

by foul bed clothes and linen, and by the poultices and other dressings of patients affected with the malady.

The clinical nature of vulvo-vaginitis in young girls seems to be well ascertained, but its ætiology is somewhat obscure. The causes of the disease may be arranged under two heads—mechanical irritation, and a local determination of a general affection. It is probable that the mechanical irritation is by far the more common. Pott is disposed to think that the affection may be transmitted by the mother to the child. The discharge, symptomatic of uterine catarrh, may, he believes, under certain conditions, produce a contagious form of vulvo-vaginitis. The disease established in the child, by contamination in this way, may then assume a specific form capable of infecting other children.

Dr. Ollivier relates in the number of the *Bulletin de l'Académie de Médecine* above referred to, an epidemic of vulvo-vaginitis which would seem to establish the contagious nature of the disease. In the ward for skin diseases in the Hospital for Children, there were, in July, 1888, two little girls affected with vulvo-vaginitis, they were under treatment for about three weeks when a number of other children, inmates of the ward, showed symptoms of vulvo-vaginitis resembling those of the two little girls. There were 15 cases; one was a child aged 3 years, 2 were 4 years old, 4 were 5 years old, 4 were 6 years old, 1 was 7 years old, 2 were 9 years old, and one was aged 13 years. The evidence that the 15 children were infected by the two children seems strong. When the latter were admitted to the hospital there were no other cases of vulvo-vaginitis under treatment in it. The sponges used by the two children were used by some of the others, and no particular care seems to have been taken to prevent the toilet apparatus of the two children from being used by the other children. All the patients used the same sanitary accommodation. The nurses who dressed the two children also dressed the other children, and probably without having washed their hands. Assuming that the vulvo-vaginitis was really infective it requires no great stretch of the imagination to conceive how easily the virus of the disease might be propagated from the affected children to the sound (so far as this disease was concerned) ones. It is worthy of remark that one of the two children was at one end of the ward and the other child at the opposite side of it; the other children were, therefore, enveloped by contagion.

So soon as the epidemic nature of the disease became obvious, precautions were taken to prevent its further propagation. Each

patient was provided with toilet necessities which were not allowed to be used by any other child. The nurses after attending each case washed their hands in a solution of a disinfectant. The night chairs and water-closets were disinfected immediately after being used. These and other precautions were successful in preventing a further development of the disease. Similar precautions might, with advantage, be adopted in the case of *crèches*, orphanages, and even of schools, for there is no doubt that the children in all such institutions are peculiarly exposed to the danger of contagion.

What is the nature of the virus of this form of vulvo-vaginitis? Is it a specific bacterium or bacillus, or is the disease caused by the presence of an unusually large number of the bacteria of suppuration? This problem the bacteriologist has not yet solved.

HÆMOGLOBIN BACTERIUM OF THE OX.

Dr. V. Babes, Professor in the Medical Faculty of the University of Bucharest, has communicated to the French Academy of Medicine (*Séance du Decembre 26, 1888*), a note on the occurrence of a peculiar bacterium in the ox. The malady which this organism gives rise to is endemic, in Roumania, more especially in marshy and low-lying situations near the Danube, breaking out every Summer in particular districts and spreading to a limited extent. The disease is of a very formidable nature, in some years from 30,000 to 50,000 oxen being carried off by it. It is less fatal in the case of cows, whilst calves oppose great resistance to it.

Notwithstanding the resemblance between some of the symptoms of this disease and those of the bovine pest and malignant catarrhal fever, it is totally distinct from those maladies and is characterised by the presence of a special micro-organism. Dr. Babes describes this microbe as having resemblance to the gonococcus. It is round, brilliant, and divided into two parts by a band passing through its centre; in some a transverse band makes four divisions. It is stained by the basic aniline dyes, used according to Gram's method, and it is decolorised by alcohol.

These organisms, termed by Babes, *Hæmoglobin bacteria*, are found free in the heart and great vessels; they adhere to the red corpuscles, and are firmly embedded in their interiors. In hæmorrhagic œdema of the kidney the bacteria occur in large numbers. Their presence modifies the red corpuscles, rendering them paler and less resistant. In the stomach they are associated with minute ulcers, which destroy the superficial tissues. In the mesentery

ganglions the bacteria, smaller than the cells of the vessels, lie in the network of plasma, forming groups of four or more individuals. The liver does not ordinarily contain bacteria. In the central part of the lobes the hepatic cells are homogeneous and yellow, and the capillaries of the intra-lobules are filled with the *débris* of cells, strongly coloured. The pulp of the spleen contains numerous large cells filled with yellow colouring matter, and the bacteria are often found lying in the interior of the red corpuscles at the periphery of the capillary veins. The capillary vessels of the kidneys are much dilated and contain large numbers of the microbe. The protoplasm of the epithelial cells of the tubercles is yellow. In short, the microbes infest the smaller arteries and capillaries of many organs and of the muscles.

The inoculation of a sound ox by a small quantity of blood taken from a sick animal does not ordinarily produce the disease. Fed on the products of the malady the ox suffers only from a transient illness accompanied by fever. The sheep, pig, fowl, and pigeon are not susceptible of the disease, whilst the rat and mouse contract it readily. The rabbit seems to be the animal most easily infected by this disease. Inoculated with the blood taken from oedematous parts of the sick animal, or fed on the products of the disease or of the bacteria cultures, this animal soon suffers from fever which often proves fatal.

The most interesting point in the disease described by Dr. Babes is the presence of microbes within the red corpuscles, which after their invasion lose their hæmoglobin, which becoming transparent and broken up, passes away through the urine.

TUBERCULOSIS IN FOWLS.

From 3 to 4 persons per 1,000 living, die annually in Ireland from tuberculosis: the ætiology of this disease is therefore a subject, the importance of which it would be difficult to over-estimate. Since the discovery of the bacillus of tubercle, the sources of the disease are the more readily traceable; that the milk of tuberculous cows was capable of communicating the disease to man was alleged and rendered probable before the discovery of the bacillus had proved the zymotic nature of phthisis. The disease may be regarded as one common to many species of animals, for the differences noticed between bacilli found in man and those detected in the ox and other animals are slight and unimportant. The frequency of its occurrence in the animals used as food for man was best known in the case of

the ox. Under the operation of the Contagious Diseases (Ireland) Act, nearly two thousand cows were slaughtered in 1888 with the view of stamping out contagious pleuro-pneumonia. The calves were, with few exceptions, free from the disease, but the healthy cows were killed because they had been on the same pastures or in the same yards with diseased cows. During the examination of the carcasses of those cows at the Dublin Corporation Abattoir, no fewer than 4.9 per cent. were found to be more or less affected with tubercle. Dairy cows seem to be most frequently affected with this disease, a fact which I attribute to the insanitary conditions under which they are generally kept, and to the longer duration of their lives as compared with bullocks. I have rarely found tubercle in the pig or sheep, especially the latter, probably because those animals are slaughtered earlier in their life than the cow or even the bullock.

The transmission of tuberculosis to man from the lower animals can no longer be regarded as a *questio vexata*; on the other hand, it seems probable that the disease may not infrequently be conveyed from man to the lower animals—for instance, by a consumptive dairymaid to the cows she milks daily. There are three ways in which the virus of the disease may enter the system—by the lungs, the alimentary canal, or by inoculation. Dr. Tappenheimer, of Meran, in 1887, dried the sputum of a phthisical subject, and caused it to pass as dust into the atmosphere of a small chamber in which healthy dogs had been placed. After several exposures to this dust-laden atmosphere the animals were killed, and were found to be affected with tubercles.

Tappenheimer's experiments, in which the phthisical sputum was given to dogs in their food, gave negative results, but other experiments have proved that the sputa, saliva, milk, tubercular secretions, &c., taken from diseased animals gave rise, when swallowed, to tuberculosis in calves, pigs, fowls, &c. The inoculation with tuberculous matter has produced the disease in numerous instances, and cases are on record in which human beings have contracted the disease owing to tubercular secretions coming into contact with sores or abraded surfaces on their hands.

From the evidence given in 1888 before the Departmental Committee on pleuro-pneumonia and tuberculosis in the United Kingdom it appears that the order of liability of man and domesticated animals to contract tuberculosis is as follows:—1, man; 2, milch cows; 3, fowls; 4, rodents; 5, pigs; 6, goats; 7, sheep; 8, horses; 9,

carnivora—dogs, cats, &c. The disease, however, rarely occurs amongst the domesticated carnivora.

I was one of the witnesses examined before this Committee, and I stated that I had met with many cases of tuberculosis in the domestic fowls. The affected fowls often came under my notice under somewhat peculiar circumstances. For example, in 1887 two dead hens were sent to me for the purpose of examining them for poison. The owner stated that he had lost nearly fifty fowls within the previous three months, and that he believed their deaths must have been caused by poison, accidentally or maliciously administered. No poison was detected in the viscera of these hens, but I found their lungs extensively affected with tubercles. On making inquiries I learned that there was a consumptive patient in the house of the gentleman who had sent the hens. It was pretty clear that the sputa of the patient had been picked up by some of the hens, or that the inspissated sputa (it was in the middle of summer) had been inhaled by the animals. I have little doubt but that the disease was communicated from one hen to another. It seems that before the phthisical patient came to the house (to die as proved) no disease had been noticed amongst the hens. The malady must have spread rapidly amongst the fowls, and have proved fatal in a very short time. In the two hens examined the tubercles were confined in one case to the lungs, but in the other the liver and spleen were greatly enlarged and much affected with tubercles. The bacilli were smaller than those which are found in man, but they appeared otherwise to be identical. The fowls were very thin, and would have brought but a poor price from the poulterer. On several other occasions fowls suspected to have been poisoned submitted to me for examination were found to be affected with tuberculosis, and I have one case of the kind at present in my laboratory. I have every reason to believe that fowls, and especially hens, are very often affected with tubercle. They are nearly always close to houses where sputa, recent or desiccated, are generally to be found. They often roost in the sleeping rooms of the poor; they are, therefore, peculiarly liable to contract tubercular disease from man. Does man contract this disease from them? That is a question which I am disposed to answer in the affirmative. If fowls affected with this disease be not thoroughly cooked the bacilli which they contain may enter the body without being deprived of their vitality. A very short immersion in water at a temperature of 100 C. is, no doubt, sufficient to kill the mature bacillus, but the

spores of the deadly microbe are not so easily destroyed—they may retain their vitality even when present in flesh which has been thoroughly cooked. I frequently examine cows affected with tuberculosis, and invariably condemn their carcasses, regardless as to their condition otherwise and regardless as to the distribution of the tubercles. Indeed I seldom meet with tubercle in the flesh of cows except when they are very old and wasted. The safest plan is to condemn every carcass of animals intended to be used as food for man in which the bacilli of tuberculosis are detected.

In concluding this brief article I may mention that the *Gazette Médicale* for August 15th, 1886, contains an account of the transmission of tuberculosis from fowls to a woman. Dr. de Lamallarée, who reports the case, states that the fowls acquired the disease by devouring the expectoration of a woman far advanced in phthisis, and that another woman who ate some of these fowls in an undone state speedily contracted the disease.

THE ANTISEPTIC PROPERTIES OF THE CREOLINS.

In the *Bulletin de l'Académie Royale de Médecine de Belgique*, IV. serie, tome III., No. 2, 1889, there is a "lecture," by M. C. Blas, on the antiseptic properties of the creolins. He made experiments with the view of determining the value of the different kinds of creolins and their relative value as compared with the phenols. The following were employed:—

1. The creolin, Jey's perfect purifier, imported direct from England.
2. The same, procured from the Exhibition of Anvers, 1885.
3. The creolin, termed Pearson's, obtained from a Hamburg house.
4. Creolin prepared by Artmann, of Brunswick.
5. Two liquid phenols containing 70° to 80° strength.
6. A white crystallised phenol.

A little phenol was found in Jey's purifier, obtained from England, but the other creolins were free from it. All possessed an odour resembling that of mixtures of phenol, creasote and benzene. Artmann's liquid possessed the least odour and the most agreeable one.

The antiseptics were mixed with blood, urine, and pancreas, and placed in covered cylindrical flasks at a temperature of 20° to 30° C., and the different mixtures kept under identical conditions. The first trial commenced on the 1st of December, 1888, and lasted six weeks. Frequent and regular observations were made with regard to the development of putridity and of bacteria in the mixtures. The following were the results arrived at:—

(A.) Used in the proportion of 0·5 per cent.

1. With urine:

All the antiseptics employed retarded the formation of ammonia and the development of bacterial life generally during forty-five days. Urine not treated with any antiseptic passed in a few days into a state of fermentation.

2. With blood:

The crystallised phenol retarded putrefaction and development of bacterial life during forty-five days. The four creolins produced the same effect during 120 hours. The two liquid phenols retarded fermentation and development of bacteria during about 100 hours.

3. With pancreas:

The crystallised and liquid phenols retarded putrefaction and the development of bacterial life during forty-five days. Jey's preparations and Pearson's produced the same effect during forty-eight hours and Artmann's for thirty-six hours.

(B.) In the proportion of 1 per cent. upon the urine, blood, and pancreas.

The three phenols of Jey's and Pearson's fluids retarded putrefaction during forty-five days, whilst Artmann's liquid operated effectively only from four to five days.

(C.) In the proportion of 1·5 per cent.

There was little or no difference between the effects of the six antiseptics.

These results indicate—

That with regard to their action on urine all the antiseptics acted equally well when used in the proportion of 0·5 per cent,

That with respect to the blood the crystallised phenol was by far the most effective.

That on the pancreas the phenols produced a better effect than the creolins, Jey's and Pearson's creolins being more effective than Artmann's.

That used in the proportion of 1 per cent. all the antiseptics were equally effective.

We learn from these experiments that used in minimal quantities crystallised phenol was the most powerful of the six antiseptics; next to it came the liquid phenols, then Jey's preparations, and, but far in the rear, Artmann's. It is important to learn that the

phenols exceed in anti-putrescent properties the creolins. Price is, however, an element to be considered when antiseptics are to be used on a large scale. M. Blas paid the following prices for the above articles:—Crystallised phenol, $3\frac{1}{2}$ francs a kilogram; phenols, 0.55 francs and 0.50 francs per kilogram; and the creolins, 1.25 francs per kilogram. Although the superior action of the phenols on the blood is demonstrated, yet for sanitary purposes—such as the purification of urinals, &c.—the creolins will be found the most satisfactory. First, because of the less disagreeable odour, and, secondly, because they mix so freely with water.

The following analysis of a commercial creolin may be considered interesting. It is taken from Professor Fröhner's Manual of Pharmacy, published in 1888 at Stuttgart. 100 parts contain —

Naphtalin	...	...	...	18
Pyrocresol	...	...	...	30
Paracresol	...	...	...	10
Xylenol	...	...	...	5
Phlorole	...	...	...	5
Leucolin	...	...	...	5
Pyridin bases	...	...	...	2
Anthracene	...	...	...	3
Aromatic hydrocarbons (about)	...	...	...	20
Ash (chiefly soda)	...	...	...	4.5 to 5.5

NATURE OF MYXOMYCETES.

C. De Bruyne, in a communication dated January 15th, 1889, and published in *Annales et Bulletin de la Société de Médecine de Gand*, discusses the question—are the myxomycetes animal or vegetable? He states that their cycle of evolution comprise the four following states:—spore, zoospore, amibe, and sporange. The most interesting stage is that of amibe. In it different individuals of the same species fuse into masses. The zoospore and amibe have spontaneous movements, exercise choice in the prehension of aliment, digest their food, and expel detritus. On division each fraction continues to live, and often unites with others to form masses.

Sporange is the condition of maturity and fructification. Capsules open or closed are formed, in which the spores are deposited. The whole of the protoplasm may be converted into spores, or a part of it may be transformed into a felting of elements of excessively variable structure in their series, and to which Haargeflecht has

given the term *capillitium*. The rapid drying, a diminution of temperature, more or less sensible, and other conditions interfere with the progress of evolution. During each stage of development there is a period of repose, more or less prolonged, to which the terms *microcyste*, *macrocyste*, and *sclerotium* are applied.

Regarded from embryological, anatomical, and pathological stand points, one encounters in the myxomycetes only the characters which distinguish animal life. In their structure and evolution they compare with certain low organisms which up to the present no one has dreamed of placing in the vegetable kingdom. The author compares the myxomycetes with certain protozoa, such for example as *copromyxa protea* (the *amœba limax* of Dugardier).

De Bruyne contends that the alleged resemblance between the myxomycetes and the true mushrooms is superficial. He points out that multiplication by spores is common to both vegetables and animals; that cellulose exists in undoubted animals; that the sporange is morphologically equivalent to the cysts of protozoa; that protoplasm is common to both animals and vegetables; that prehension and digestion are established in the case of the amibes. From various considerations which he enumerates the author concludes that the mycetozoa, resembling in their various stages the myxomycetes are a transition between the monadines and the true gregarines and the colpoda cuculus.

FRENCH HYGIENIC ESSAYS.

At the *séance* of the French Academy of Medicine, held on the 11th of September, 1888, eight essays, competing for the Vernois Prize, were submitted by the commission, consisting of the eminent sanitarians, Drs. Lagneau, Valin, and Trasbot. The first of the essays, comprising a volume of 600 pages, is entitled "The Pig, and the Products of the Pork Butcher; their Hygiene, Inspection, and Regulation."

It commences with an historical account of the domesticated animals, showing that the great majority have, from the most ancient times, been reclaimed from a wild condition. Each of the following four parts of the work is divided into several chapters. Part I. is a kind of zoological treatise; the second treats of diseases of the pig; the third is the most extensive, and deals with pork, bacon, and other matters, and is, in fact, a *Manuel de la Charcuterie*, or Pork Butcher's Handbook. The last part describes all the laws, ordinances, and regulations referring to food unsound or unwhole-

some. The author, M. Th. Bourrier, is Inspector of Slaughter-houses, Paris, and he displays in his work a remarkable erudition. Every work bearing upon his subject, from the poems of the ancient Greeks and Romans, and the capitulars of Charlemagne, to the most recent treatise on food, seem to have been laid under contribution. From a public health point of view, the most interesting parts of the book are those referring to the diseases of the pig and *post mortem* changes in its carcase which render its flesh unwholesome. The various well-known maladies affecting the pig are well described, and their effects upon the carcase of the animal minutely indicated. The author regards as unwholesome the flesh of an animal that has been over-fatigued before being slaughtered. He considers that tuberculosis, charbon, trichinosis, and a species of septicæmia are often transmitted from the pig to man, by the former being used as food by the latter. Much severe indigestion and even septicæmia are produced by the numerous preparations of the flesh and blood of the pig, and particular attention is drawn to the fact that these preparations are often rendered poisonous by containing toxic mushrooms, notably *sarcina botulina*. The author points out that the flesh of animals is often rendered unpleasant in flavour, and, perhaps, unwholesome, by the animals eating certain plants—such, for example, as absinthe, and by the administration of medicines.

No. 2 essay is entitled "The blackening action of carbonaceous dust during and after the explosion of fire-damp," and its author is Dr. Servel. He seeks to prove that burns are produced in the deeply situated parts of the respiratory organs during explosions of fire-damp, and that these burns are of a more serious nature than is admitted in the memoir of Dr. Reynaud, entitled "*Sur le rôle de la décompression brusque dans les accidents consécutifs aux explosions du grisou.*" Dr. Servel states that carbonaceous dust, spread in the atmosphere of mines, is volatilised by the highly heated fire-damp, and converted into tar vapour. This vapour, passing into the respiratory organs, becomes condensed in their remotest parts, and disengaging therein its acquired heat, produces burns. The result of two autopsies are relied on in support of this theory. No lesions of the mouth, nasal organ, larynx, and trachea, were found; but the mucous covering of the bronchi was red—that of the smaller being reduced to pulp. He believes that miners who have been subjected to explosions of fire-damp, and have apparently recovered from the injury inflicted upon them thereby, ultimately

die in consequence of inflammation originated in the bronchi and lungs by the burns above described.

Dr. Servel alleges that, at the moment of the conflagration, the vapour of water in the air is decomposed, and that its oxygen, combining with the carbonaceous dust, produces carbon monoxide, a deadly poison. It is this oxide of carbon which, penetrating to the bottom of the air tubes of the respiratory organs, causes the burns therein. The presence of this dust in the air of mines being a serious factor in producing accidents during fire-damp explosions, and being also, under ordinary circumstances, an injurious impurity of the air, the author suggests that means should be adopted to remove it. For this purpose he proposes to sprinkle the dust with a concentrated solution of common salt and magnesium chloride. These hygroscopic mixtures would fix and retain the carbonaceous particles.

The third essay, by Messrs. Villair and Bascon, treats of the inspection of food, and is a complement to a former essay on that subject presented to the Academy. The authors consider that gelatinous food should not be given to very young or very thin persons, as, whilst they possess but little nutritive properties, they are apt to cause diarrhoeal complaints. Fibrous foods, which are prone to rapid decomposition—and especially when already in a decomposing state—are especially dangerous, because of the numerous leucomains and ptomaines which, as a rule, they contain, and which produce disease, and occasionally death, when swallowed. The authors give numerous examples of poisoning in France, which were traced to the use of diseased or otherwise unsound food. The importance of having all animals, intended for human food, slaughtered in public abattoirs, so that they may be carefully inspected, is insisted upon.

No. 7 essay deals with the subject of seltzer water as a vehicle for the propagation of disease. The author considers that the artificial aerated mineral waters, now so largely used, are a sensible factor in spreading various zymotic diseases—such as, for example, cholera and enteric fever. He shows that various low organisms can multiply and flourish in these gas-impregnated liquids. Having cultivated in the usual ways various species of pathological and non-pathological microbes, he introduced them into freshly-prepared mineral waters. The following are briefly expressed results of the experiment:—After twenty-five days the micrococcus tetragonus ceased to be active; the bacillus of tubercle remained active; the microbe of charbon had broken up in one day, but its spores retained their

virulence after seventy days. After sixty days the *aspergillus flavescens* lost but little of its strength, whilst within forty-two days the micrococcus of pus had become inactive. The micrococci *aurantiacus* and *indicus* remained unchanged during forty days; on the contrary, the micrococcus *prodigiosus* was destroyed within that period. After seventy days the *sarcina lutea* continued to propagate. The experiments were conducted at three different degrees of temperature—at the freezing point, at 10° to 12° C., and at 30° C.

The concluding part of the essay treats of the composition of the metallic part of the siphon bottles used to store mineral waters. He finds that it contains from twenty to thirty-five per cent. of lead, but he gives good reasons why the alloy should not contain more than twenty per cent of lead.

INFECTIOUS NATURE OF TRAUMATIC TETANUS.

The subject of the infectious nature of traumatic tetanus has lately been fully discussed by the French Academy of Medicine at several of their meetings. Dr. P. Berger and Dr. G. Richelot, surgeons in Paris hospitals, have read memoirs before the Academy, with the object of proving that traumatic tetanus is capable of being transmitted from man to man. They state that when two wounded persons develop tetanus in the same place and with but a short interval of time between the cases, the second case exactly resembles the first. They conclude from their experience that the disease is contagious, and assert that it should be removed from the group of ill-defined nervous diseases, in which the nosologists have placed it, to that of the specific and virulent maladies. Both authors give numerous cases, which seem to show the contagious nature of the disease. In some instances the malady was contracted by the patient having occupied the bed which, shortly before, had been occupied by a tetanic patient. In such case it is easy to conceive that the discharge from the wound of the first patient was not wholly removed from the bed or its covering. In other cases the disease was contracted by persons whose beds had not been occupied by tetanic patients; and in rarer cases the disease seems to have spread into wards in which, for a long time previously, there had been no cases of tetanus. It is then probable that the disease is not simply propagated by direct infection, as in the case of syphilis, but that the virus may be conveyed by intermediary agents.

Dr. Verneuil, at the meeting of the Academy held on the 30th of

October, gave a lengthy criticism of Berger's and Richelot's memoirs; he agrees with their conclusions, and gives some evidence deduced from his own experience in support of them. He says that certain physicians and veterinarians assert that tetanus resembles the infectious maladies—amongst others, charbon, rabies, and glanders; that it is undoubtedly sporadic, endemic, and epidemic, in all latitudes, at all ages, and amongst all races of men, and species of domesticated animals; that under the most opposite conditions it presents a remarkable uniformity in its symptomology and progress, indicating a single origin and a specific agent; that cold, heat, humidity, &c., play no greater part in connection with this disease than they do in connection with pneumonia, erysipelas, influenza, &c.; that hygienic measures diminish the mortality caused by the disease.

Experiments have shown that by inoculation the disease can be transmitted from man to the lower animals, and from animal to animal of the same and of different species. No experiments have of course been made with the view of showing that it may in this way be transmitted to man from the lower animals; but there is evidence to show that such inoculation has accidentally taken place. It would seem that the nature of the disease is substantially the same in all animals.

It must be admitted that the bacteriology of tetanus has made but slight advances, but there is some reason to believe that the drumstick-shaped bacillus, described by Nicolaier and Rosenbach, and observed by many microscopists in tetanic cases, is the *materies morbi* of the disease.

It is evident that if tetanus is a disease of the contagious class, the greatest care should be taken to prevent its propagation in hospitals. Attention must be given to the thorough cleansing and disinfection of the patient's bed and clothing, and of the instruments used by the surgeons in dressing the wounds.

In conclusion, it may be well to state here that Dr. René Colin has published (Masson, Paris, 1888) a most interesting work entitled *De la Nature Infectueuse du Tetanos*, in which he gives an historical study of the question. The bibliography of tetanus in this book is extensive and carried down to 1888, for in it is quoted Dr. Charles Ball's paper on tetanus, read before the Royal Academy of Medicine in Ireland, November 4th, 1887, and published in the *Transactions of the Academy*, which did not appear until 1888.

VITAL STATISTICS OF BERLIN AND BRUSSELS.

The vital statistics of Berlin for 1885 have only been published in 1888 in a volume entitled *Statistisches Jahrbuch der Stadt Berlin*, and edited by Herr Richard Boeckh, Director of the Statistical Department of the City of Berlin. In that year the city contained 1,315,287 inhabitants, of whom 631,878 were males, and 683,409 females. There were only 10,848 strangers in this large population. Divided under the head of religion there were 1,143,167 Protestants; 99,483 Roman and Greek Catholics; 64,355 Jews; and 8,282 of other or no sects. The marriages were 13,866, the births 46,975 (23,946 males, and 23,029 females), or in the ratio of 36·76 per 1,000 of the population. There were 1,848 still births. The deaths numbered 134,483, or in the ratio of 24·37 per 100 of the population. The deaths of children under one year numbered 11,582, and of persons from 1 to 19 years, 7,311.

The principal zymotic diseases caused the following number of deaths:—smallpox, 5; measles, 406; scarlet fever, 409; diphtheria and croup, 2,007; enteric fever, 214; diarrhoea and enteritis, 3,867; Amongst other diseases the most fatal was phthisis, to which were ascribed 4,472 deaths. The mean temperature was as follows:—First quarter 1·7° C; second quarter, 13·5°; third quarter, 16·1°; fourth quarter, 4·0°; mean annual, 8·8°.

The annual report on the vital statistics, state of public health, &c., in the city of Brussels for 1887 has only recently been published. We learn from it that the state of public health has been improving, and that in 1887 the city occupied a high place amongst the most salubrious cities of the continent. In 1864–1868 the death rate was 31·3 per 1,000; 24·7 in the period 1879–1883; 24·6 in 1884–1886; and it was only 21·8 in 1887. The zymotic diseases caused but a moderate mortality, but phthisis carried off large numbers of persons.

MORTALITY IN THE FRENCH ARMY AND NAVY.

The *Bulletin* of the Séance of the French Academy of Medicine for February 12th, 1889, contains a long article on the mortality of French sailors and soldiers, contributed by Mons. G. Lagneau. The deaths of military men per 1,000 effective men in France were as follows:—1842–1848, 19·5; 1862–1869, 11·42; 1872–1884, 10·22. In Algiers the rate was 77·8 in the period 1837–1848 (there was hard fighting between French and Arabs during that period); 17·16 in the period 1862–1869, 11·91 in the years 1872–

1875; in 1881 the rate rose to 22·61, and it was 11·16 in 1883–1884. In Tahiti the rate during 1848–1854 was ·8. In Martinique the rate was 91·9 in the period 1819–1855. In Tonquin the mortality rose from 10·2 in 1883–1885 to 96 in 1885. In Cochin China 68 per 1,000 died during the period 1861–62, 91·8 in 1862, 48·2 in 1861–1879, 11·82 in 1882, and 43·54 in 1886. From 1856 to 1865 the rate was 137 in Pondicherry. In Senegal the rate was 146 in 1832–1837, and in 1852–1883, 73·4–70. In Tunis the rate was 61·30 in 1881, and 12·2 in 1883–1884.

In France, according to Bertillon, the deaths amongst men aged from twenty to twenty-five years are in the ratio of 10·6 per 1,000 living, and 8·4 per 1,000 amongst men aged from twenty-five to thirty years. There is, therefore, evidently a higher mortality amongst young men in the military services. In Great Britain this is not the case.

CHEMICAL COMPOSITION OF MAN.

According to the *Pharm. Centralblatt*, xxviii., man is formed by the association of 13 elements, of which 5 are gaseous and 8 are solid. A man weighing 70 kilograms contains 44 kilograms of oxygen—which when free occupies a volume of 28 cubic metres; 6 kilograms of hydrogen—which in a free state occupies a space of 80 cubic metres; the other gases are nitrogen (1·72 kilograms), chlorine (800 grams.) fluorine (100 grams.). Of the solid elements there are 12 kilograms of carbon, 300 grams of phosphorus, 100 grams of sulphur, 1·75 grams of calcium, 50 grams of magnesium, 80 grams of potassium, 70 grams of sodium, and 45 grams of iron.

MEDLEVAL SKULLS.

DR. DIGHT (*Journal of the American Medical Association*), who is Professor of Anatomy in the American College of Beirut, Syria, has been examining a collection of skulls in an old monastery in the Kedron Valley, near Jerusalem. He finds that the Aryan skull has increased two inches in circumference and three and a half cubic inches in cranial capacity. There has been no increase in width, so that the whole gain in size may be credited to the upper and anterior part of the brain, showing a distinct gain in the intellectual and altruistic powers of the existing Aryans of this agnostic century. [The question, however, has a very serious side for the man-midwives of the present day, and Chamberlain's forceps were not invented a day too soon.]

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SAMUEL GORDON, M.D., F.K.Q.C.P.I.

General Secretary—W. THOMSON, M.D.

SECTION OF SURGERY.

President—HENRY FITZGIBBON, M.D., President of the Royal College of Surgeons, Ireland.

Sectional Secretary—W. THORNLEY STOKER, F.R.C.S.I.

Friday, February 22, 1889.

The PRESIDENT in the Chair.

The Treatment of Tubercular Peritonitis by Abdominal Section and Flushing out without Drainage.

MR. O'CALLAGHAN gave three cases in his practice, and the statistics of this treatment up to the present. [They will be found at page 472.]

MR. THOMSON congratulated Mr. O'Callaghan, not only upon the result of his cases, but upon his courage in carrying out the operation in a rather isolated position. In all those cases of so-called tuberculous disease of the peritoneum, the earlier the surgeon was consulted the better for the patient; and there was no doubt also that the result of opening the abdomen and the washing of it out had been exceedingly successful. He was ready to concur in the observation which Mr. O'Callaghan had attributed to Mr. Lawson Tait, that it might be wrong to apply the term "tuberculous" to this disease of the peritoneum. The difficulty which suggested itself, looking at the satisfactory results following incision of the abdomen and the washing out of the peritoneal cavity, was that similar results did not follow the like process in respect of other cavities. For instance, take the knee-joint as the seat of tuberculous disease, and simply cut into it and drain it out without attacking the actual seat of the tuberculosis itself—surgeons did not regard that process as likely to

cure the tuberculous nests which remained. On the contrary, the tuberculosis spread, and the joint went to the bad. Hence he would like an explanation of how those cases of so-called tuberculosis of the peritoneum seemed to cease in their virulence as soon as the abdominal cavity was emptied of the fluid and thoroughly washed out.

MR. KENDAL FRANKS said the subject of tubercular peritonitis and its treatment presented great difficulty. In his view, on seeing the tubercles on the peritoneal aspect so like the ordinary miliary tubercles, the disease was tuberculous, and microscopical examination had established that they contained the bacilli of tuberculosis. In a case of abdominal tumour in which he had operated some years ago, the omentum and peritoneum were one mass of tubercular matter, the intestine being covered with little round bodies like tubercles. Removal could not be attempted, the intestines were so adherent to the mass, and the cavity was simply closed again; and yet the procedure so far had had a wonderful effect in removing the pain and distress from which the patient had suffered long before the operation was done. The patient put on flesh, got remarkably well, and went to the country, and he heard of her as being in good health three years afterwards. Since then, however, the peritonitis returned, and she was sent to the Hospital for Incurables, where she died in the past year, four years after the abdomen was opened. He regarded opening the abdominal cavity as a comparatively harmless operation.

MR. CORLEY observed that frankness and straightforward self-esteem were attributes of Mr. Lawson Tait, who, as regards ordinary surgeons attempting to deal with abdominal tumours, gave them the advice of *Punch* to those about to get married, doubtless excepting the surgeons of London and Birmingham; but Mr. O'Callaghan proved that the surgeon of a provincial town could undertake such procedures with success, and he looked upon him as a pioneer of abdominal surgery in this country.

MR. W. THORNLEY STOKER, while advocating as strongly as anyone could that the operation of opening the peritoneum for exploratory and therapeutic purposes should be undertaken more frequently than at present, objected to applying the term "tubercular" to disease of the peritoneum, unless authenticated by the discovery of the bacillus. All they knew of the disease should make surgeons slow to believe that washing out the peritoneal cavity with water would cure the patient, and the satisfactory results went a long way to prove that the disease in many of these cases was not tubercular in the exact sense of the word. Indeed, he could not believe that disease cured in the way described was tubercular, unless he had the positive evidence that the microscope had discovered the bacillus in the contents of the abdomen. As he had said, he did not decry the operation, but there ought to be some evidence of the disease being tubercular beyond that afforded by the naked eye.

DR. FRAZER observed that even the discovery of the bacillus under the

microscope was not conclusive as not being satisfactory evidence that it was a tubercular bacillus; for instance, there was a bacillus connected with leprosy, and there might be many other forms of that strange organism.

THE PRESIDENT thought the arrest of the disease was due to the removal of the ascitic fluid, as being not only one of the products of tubercular peritonitis, but as favouring the development of the disease. Even in cases of undoubted tuberculosis, the practice adopted by Mr. O'Callaghan was sound. As to the identification of the organism, in his experience, where competent microscopists identified tuberculous bacillus the ultimate result had proved that they were right.

MR. O'CALLAGHAN replied, mentioning two instances of the bacillus tuberculosis being found in the peritoneum in exactly similar cases to his.

New Method of Extra-articular Suture of the Patella.

DR. MYLES described a new method which he had devised, of extra-articular suture of the patella, to bring about bony union in tranverse fractures.

MR. MELDON, having seen Dr. Myles' device tried, said the treatment afforded a fair prospect of bony union in the cases for which it was designed, a remarkable feature which struck him being the small force required to bring the parts together.

MR. ORMSBY said he had taken such a fancy to Dr. Myles' device, that he would adopt it in his next suitable case of fracture of the patella. He had recently seen an interesting case—that of a railway porter, who, about two months ago, had been treated in the Meath Hospital for fracture of the patella, with the result of producing good union, though not bony union. The man was enabled to resume his work, but a few days ago, while coupling carriages, he gave his knee a twist, separating the fragments. The case was admitted; the joint was opened, and it turned out that there was no bony union, the two bone-surfaces being rounded. The fibrous expansion in front of the patella had kept the two surfaces together. The surfaces were, on this occasion brought together with silver wire. Dr. Myles' treatment had one great advantage—that the pins did not pass into the joint. It seemed as if the skin was likely to be frayed by the "figure of 8" suture. What was supposed to be bony union was not always so. For instance, the remarkable case reported as bony union by Dr. Croly, who afterwards, when the patient died of pneumonia, was in a position to discover that it was a case of very close fibrous union.

MR. W. THORNLEY STOKER did not agree in some of Dr. Myles' propositions; for example, that fracture of the patella meant generally permanent disablement. The result of the treatment by posture and coaptation produced by sticking-plaster, adopted usually by himself and his colleagues in the Richmond Hospital, was generally the produc-

tion of a perfectly useful limb. Dr. Myles had also propounded that the value of the quadriceps was *nil* when much separation of the fragments existed; but he had seen many such cases in which an admirable use of the limb resulted. He remembered a pedlar with a gap of 6 or 7 inches between the fragments of the patella, who was able to carry a heavy pack 30 or 40 miles a day. Apart from these points, Dr. Myles' explanation of the ordinary plan of treatment by purchase above and below the fracture as contrasted with his own, and the illustration by means of the frozen sections, were interesting and valuable as exhibiting the correct mechanism of the patella and knee-joint. He could not conceive any surgeon undertaking to open the joint and suture the patella as a primary operation, but only on failure of union when it became necessary to resect the fractured surfaces to try and effect bony union. Dr. Myles' plan seemed a good one, and he would be inclined to adopt it as having certain advantages over Malgaigne's, particularly as the purchase applied to the two fragments was close to the seat of fracture. The real question was as to the method to be adopted in dealing primarily with fracture of the patella, and that question could be answered only when Dr. Myles' plan received a trial; from the mechanical advantages it seemed to possess, he was himself disposed to try it.

DR. BALL concurred with Mr. Stoker as to the proportion of cases of fracture of the patella in which a fairly good result ensued from the treatment. Within the past few days he had had an opportunity of examining a patella which had been fractured twenty years previously and the union was firm—not ligamentous, but rather what Adams had described as membranous union. The man earned his livelihood as a cabdriver and did his work very well. Next, as to the question whether bony union was such a great desideratum as was supposed. Hutchinson published the case of a man who suffered transverse fracture of the patella and bony union resulted, but he had difficulty in getting about. In another accident the same man refractured the patella at the position in which it had been united by bone. It subsequently failed to unite by bone. In the result, however, the man had a much more useful limb than when bony union took place. Another important factor as regards bony union was the anatomical position of the patella. Callus which united fractured bones did not sprout out from periosteum or bone muscle at all, but from connective tissue in muscle of the immediate neighbourhood of fracture. There was a very large amount of callus surrounding the bones on the aspects covered by muscle, and very little of that was subcutaneous. A synovial cavity of a joint limited the formation of callus much more sharply, as in the neck of the femur. No bone was formed which could sprout into the joint; so that the only way in which union by bone of fractured patella could be got was by approximation of the surfaces in the way Dr. Myles had pointed out.

DR. CORLEY would like some experience of Dr. Myles' plan before adopting the complete form of flattery—imitation; but he would not like subjecting the patient to any of the experimental tests laid down by Dr. Myles himself. With one exception all his own cases turned out with useful limbs, and save in a few instances there was nothing in the ordinary fractured patella to prevent the patient afterwards pursuing even a laborious occupation such as that of cabman. He did not think there was any great difference between Dr. Myles' plan and Malgaigne's hooks.

MR. THOMSON pointed to the illustrative case of fracture given by Dr. Myles as that of a patella in which the fracture was exactly in the middle, whereas it sometimes occurred that nearly the whole body of the patella was torn off, leaving only a small shell of bone attached to the ligament, or the upper fragment so small as made it scarcely possible to catch hold of it. Another point was that, supposing the surfaces of the fractured fragments brought together, care should be taken that they were in absolute apposition so far as the anterior and posterior surfaces were concerned; for if there were the least projection anteriorly or posteriorly, there must, with union in that position, be a damaged joint—owing to a rough projecting margin behind. Dr. Myles had spoken of the credulity of youth but with a good deal of the confidence of youth, as to the terribly disastrous cases of fractured patella in which the fragments had been united by ligament; but he had not seen such cases, and he did not believe that ligamentous union was so bad after all. As to the test of jumping on one foot, they were not dealing with acrobats, but with people who had to earn their bread in pursuing ordinary avocations, and they got about extremely well with a bit of ligament between the fragments. He entirely agreed with Dr. Myles in discountenancing opening of the knee-joint as not justifiable except for absolute inutility of the limb.

The PRESIDENT also took exception to Dr. Myles' statement that so many cases of fractured patella resulted in useless limbs under the old treatment. In no single instance in his experience where the case was treated by a skilful surgeon had the limb been so useless as represented, and he knew of several cases in which the limbs were as good as if they had never been injured. Dr. Myles' ingenious method of treatment commended itself for its mechanical principle.

DR. MYLES replied. He never intended to suggest that his method should be used in other than transverse fractures. No doubt a man might walk fairly well without standing the three tests which he had proposed. In every case of fractured patella the thigh muscles were invariably wasted, due to the diminished range of the quadriceps by contraction, proving his proposition. With respect to the comparing of his plan with Malgaigne's hooks, Agnew had spoken of these as an infernal machine responsible often for permanent disablement of the limb.

CLINICAL RECORDS.

*Splenectomy in a Case of Tuberculosis of the Spleen.** By ANDREW ST. LAWRENCE-BURKE, late Senior Surgical Resident, City of Dublin Hospital.

THE following notes will prove interesting to those who have not heard of or seen a similar case :—

Mrs. G., aged twenty-seven years, was admitted into hospital on the 4th of July, 1888, complaining of pain in the splenic region. On examination, a large, flat, notched tumour was felt, which was so movable as to be easily turned over in the abdomen. It was attached to the side in the left lumbar region. The patient first noticed the tumour five months after her confinement. It had increased very much in size since it had been first observed. A mixture of iron and quinine was ordered, and at the end of three weeks there was a great improvement in the patient's appearance, for she had been very anæmic when admitted; but the tumour was still increasing in size. Having examined the lungs and the sputa, and nothing being found which would lead one to think that there was any tuberculosis, the surgeon in charge held a consultation, and it was agreed that the spleen should be removed, more particularly as the patient could not bear the pain any longer, and as hypodermics and other remedies had been used ineffectually, it was the only thing to be done.

Previous to the operation a small ward was got ready, and the operation was performed there, in order that the patient should get as little shaking as possible in removing her from the table to her bed.

The operation was performed as follows :—The carbolic spray was allowed to play on the patient before the operation, but not after, as it might set up peritoneal inflammation. The patient being put fully under the anæsthetic, which was chloroform in this case, an incision was made in the middle line between the umbilicus and pubes, four inches long; but as the enlarged spleen could not be extracted through this opening the incision had to be prolonged upwards round the umbilicus to six inches. The spleen was then removed, the pedicle being tied with a Staffordshire knot. The wound was then sponged out and the edges were brought together with deep and superficial silk sutures and dressed with antiseptic dressing. The operation was well borne. Temperature, 99°, and pulse 84. The patient felt little or no pain when removed to

* Read before the Royal College of Surgeons Students' Debating Association.

bed. Evening temperature, 100° ; pulse, 140. Slept well till 1 a.m., when she awoke, and complained of pain in the abdomen and shoulder, which was relieved by a hypodermic injection of morphin. The patient had been taking pills composed of half a grain each of extract of belladonna and opium, with two grains of sulphate of quinine, every fourth hour.

August 4th.—She passed a fairly good night; no pain; pulse, 125; temp., 102° ; took some cold chicken-broth and ice. On looking at the wound there was some appearance of blood-serum on the salicylic wool.

Mid-day temperature, 104° ; pulse, 140. Ordered a little champagne.

3 p.m.—Temperature, 105.5° ; pulse, 140; respiration hurried. Enema of beef-tea and brandy.

At 6 15 p.m. she started up, became restless, and succumbed in a few minutes.

There was no opportunity of making an autopsy, as the friends would not allow it.

The spleen weighed 3 lbs. and measured 10 inches \times 7 \times $2\frac{1}{2}$ after it had been in spirit for twenty-four hours. I got some sections made of the spleen, and they revealed the presence of tuberculosis.

My best thanks are due to Drs. Graves and J. A. Scott, who made the microscopical examinations for me.

DEATH FROM THE STING OF A WASP.

MR. PURNELL, of Bixworth, was stung on his temple by a wasp. Great pain and swelling immediately followed, and death resulted in less than fifteen minutes (*The Illustrated Medical News*, No. 3). The Rev. S. Smith relates a case of death of a man from the sting of a bee on the tongue, which case is probably known to many of our readers. *The Lancet*, June 16, 1883, records the death within half an hour of a man who was stung on the eyelid by a bee. Strong solution of ammonia applied to the part decomposes the animal poison and is the best antidote.

URALIUM.

THE latest of hypnotics, "uralium," is produced by the combination of chloral and urethan. It is prepared by Signor Gustavo Poppi, of Bologna, a medical student, who declares with all the ardour of youth that it is the best of hypnotics. Considering that chloral is a halogen compound of the primary monatomic alcohol series, and that halogens of the series are cardiac poisons, the remedy does not commend itself by its chemical composition. No doubt the ammonium base of the urethan may counteract in part the depressing action of the chloral, nevertheless the new hypnotic does not recommend itself to us.

SANITARY AND METEOROLOGICAL NOTES.

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VITAL STATISTICS

For four Weeks ending Saturday, April 20, 1889.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	Mar. 30.	April 6.	April 12.	April 19.		Mar. 30.	April 6.	April 12.	April 19.
Armagh -	15·5	31·0	36·1	20·7	Limerick -	31·0	31·0	17·5	13·5
Belfast -	24·1	26·1	25·0	26·1	Liaburn -	14·5	14·5	24·2	14·5
Cork -	25·8	26·6	16·9	18·8	Londonderry	37·4	25·0	21·4	10·7
Drogheda	42·3	29·6	33·8	38·1	Lurgan -	15·4	20·5	20·5	20·5
Dublin -	27·0	25·3	24·7	23·3	Newry -	10·5	10·5	17·6	10·5
Dundalk -	8·7	17·5	13·1	26·2	Sligo -	9·6	9·6	4·8	14·4
Galway -	10·1	23·5	16·8	23·5	Waterford -	48·6	16·2	16·2	25·5
Kilkenny	21·1	16·9	25·4	25·4	Wexford -	8·6	4·3	21·4	51·3

In the week ending Saturday, March 30, 1889, the mortality in twenty-eight large English towns, including London (in which the rate was 17·7), was equal to an average annual death-rate of 19·9 per 1,000 persons living. The average rate for eight principal towns of Scotland was 22·1 per 1,000. In Glasgow the rate was 29·6, and in Edinburgh it was 14·0.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 25·6 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·9 per 1,000, the rates varying from 0·0 in nine of the districts to 5·4 in Limerick—the 23 deaths from all causes registered in that district comprising 1 each from scarlatina, typhus, whooping-cough, and enteric fever. Among the 106 deaths

from all causes registered in Belfast are 2 from scarlatina, 2 from whooping-cough, 4 from diphtheria, 1 from simple continued fever, and 2 from diarrhoea; and the 39 deaths in Cork comprise 1 from scarlatina and 4 from whooping-cough.

In the Dublin Registration District the births registered during the week amounted to 242—138 boys and 104 girls; and the deaths to 187—77 males and 110 females.

The deaths, which are 39 below the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 27·6 in every 1,000 of the estimated population. Omitting the deaths (4 in number) of persons admitted into public institutions from localities outside the district, the rate was 27·0 per 1,000. During the first thirteen weeks of the current year the death-rate averaged 28·6, and was 5·6 below the mean rate in the corresponding period of the ten years 1879—88.

Fourteen deaths from zymotic diseases were registered, being 5 over the number for the preceding week, but 16 below the average for the thirteenth week of the last ten years. They comprise 4 from measles, 1 from scarlet fever (scarlatina), 1 from typhus, 1 from whooping-cough, 2 from enteric fever, &c.

The number of cases of enteric fever admitted to hospital during the week was 10, being an increase of 3 as compared with the admissions for the preceding week. Four enteric fever patients were discharged during the week, 1 died, and 45 remained under treatment on Saturday, being 5 over the number in hospital on Saturday, March 23.

Four cases of scarlatina and 4 of typhus were admitted to hospital against an equal number of the former and 1 case of the latter disease admitted during the preceding week: 26 cases of scarlatina and 9 of typhus remained under treatment on Saturday.

Fourteen cases of measles were admitted to hospital, being 4 in excess of the admissions for the week ended March 23: 27 cases of the disease remained under treatment on Saturday.

Deaths from diseases of the respiratory system number 35, being 1 over the number for the preceding week, but 18 under the average for the thirteenth week of the last ten years. The 35 deaths comprise 20 from bronchitis, 8 from pneumonia or inflammation of the lungs, and 3 from croup.

In the week ending Saturday, April 6, the mortality in twenty-eight large English towns, including London (in which the rate was 18·8), was equal to an average annual death-rate of 20·3 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·8 per 1,000. In Glasgow the rate was 28·8, and in Edinburgh it was 17·7.

The average annual death-rate in the sixteen principal town districts of Ireland was 24·6 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·1 per 1,000, the rates varying from 0·0 in eleven of the districts to 5·3 in Londonderry. The 14 deaths from all causes registered in that district comprise 1 each from measles, simple continued fever, and diarrhoea. Among the 115 deaths from all causes registered in Belfast are 3 from diphtheria, 1 from simple continued fever, 1 from enteric fever, and 1 from diarrhoea; and the 41 deaths in Cork comprise 2 from whooping-cough.

In the Dublin Registration District the births registered during the week amounted to 144—72 boys and 72 girls; and the deaths to 174—89 males and 85 females.

The deaths, which are 33 below the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 25·7 in every 1,000 of the estimated population. Omitting the deaths (3 in number) of persons admitted into public institutions from localities outside the district, the rate was 25·3 per 1,000. During the first fourteen weeks of the current year the death-rate averaged 28·4, and was 5·6 below the mean rate in the corresponding period of the ten years 1879—88.

Only thirteen deaths from zymotic diseases were registered during this week, being 1 under the low number for the preceding week, and 13 below the average for the fourteenth week of the last ten years. They comprise 2 from measles, 2 from whooping-cough, 1 from diphtheria, 2 from enteric fever, 2 from erysipelas, &c.

Twenty-nine cases of measles were admitted to hospital, against 14 for the preceding week: 7 measles patients were discharged, 1 died, and 48 remained under treatment on Saturday, being 21 over the number in hospital on Saturday, March 30.

Fifteen cases of enteric fever were admitted to hospital, being 5 in excess of the admissions for the preceding week: 9 patients were discharged, 1 died, and 50 remained under treatment on Saturday, being 5 over the number in hospital on Saturday, March 30.

The hospital admissions for the week include also 3 cases of scarlatina and 4 of typhus: 26 cases of the former and 7 of the latter disease remained under treatment in hospital on Saturday.

Forty-four deaths from diseases of the respiratory system were registered, being 9 over the number for the preceding week, but 6 under the average for the fourteenth week of the last ten years. They comprise 26 from bronchitis, 7 from pneumonia or inflammation of the lungs, and 2 from croup.

In the week ending Saturday, April 13, the mortality in twenty-eight large English towns, including London (in which the rate was 17·9), was equal to an average annual death-rate of 19·9 per 1,000 persons living. The average rate for eight principal towns of Scotland was 28·0 per 1,000. In Glasgow the rate was 28·9, and in Edinburgh it was 14·8.

The average annual death-rate represented by the deaths registered last week in the sixteen principal town districts of Ireland was 22·9 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·3 per 1,000, the rates varying from 0·0 in nine of the districts to 4·8 in Lisburn—the 5 deaths from all causes registered in that district comprising 1 from typhus. Among the 110 deaths from all causes registered in Belfast are 3 from measles, 1 from whooping-cough, 2 from diphtheria, 2 from enteric fever, and 3 from diarrhoea; and the 26 deaths in Cork comprise 3 from whooping-cough. The Registrar of Lisburn District remarks—"There have been several cases of enteric fever in the urban sanitary district recently."

In the Dublin Registration District the births registered during the week amounted to 192—104 boys and 88 girls; and the deaths to 174—97 males and 77 females.

The deaths, which are 25 below the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 25·7 in every 1,000 of the estimated population. Omitting the deaths (7 in number) of persons admitted into public institutions from localities outside the district, the rate was 24·7 per 1,000. During the first fifteen weeks of the current year the death-rate averaged 28·2, and was 5·5 below the mean rate in the corresponding period of the ten years 1879–88.

Twenty-four deaths from zymotic diseases were registered, being 11 over the low number for the preceding week, and equal to the average for the fifteenth week of the last ten years. They comprise 10 from measles, 7 from whooping-cough, 2 from enteric fever, 2 from diarrhoea, &c.

The number of cases of measles admitted to hospital is 17, being a decline of 12 as compared with the admissions for the preceding week; 18 measles patients were discharged, 4 died, and 43 remained under treatment on Saturday, being 5 under the number in hospital on Saturday, April 6.

Thirteen cases of enteric fever were admitted to hospital, being 2 under the admissions for the preceding week: 9 patients were discharged, 1 died, and 53 remained under treatment on Saturday, being 3 over the number in hospital at the close of the preceding week.

The hospital admissions for the week include also 5 cases of scarlatina and 1 case of typhus: 30 cases of the former and 7 of the latter disease remained under treatment in hospital on Saturday.

Deaths from diseases of the respiratory system, which had risen from 35 in the week ended March 30 to 44 in the following week, fell last week to 33, or 12 below the average for the corresponding week of the last ten years. The 33 deaths from these causes comprise 21 from bronchitis, 6 from pneumonia or inflammation of the lungs, and 2 from croup.

In the week ending Saturday, April 20, the mortality in twenty-eight large English towns, including London (in which the rate was 17·1), was equal to an average annual death-rate of 19·4 per 1,000 persons living. The average rate for eight principal towns of Scotland was 23·7 per 1,000. In Glasgow the rate was 29·4, and in Edinburgh it was 20·1.

The average annual death-rate in the sixteen principal town districts of Ireland was 23·0 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·4 per 1,000, the rates varying from 0·0 in nine of the districts to 3·5 in Newry—the 8 deaths from all causes registered in that district comprising 1 from whooping-cough. Among the 115 deaths from all causes registered in Belfast are 1 from measles, 2 from scarlatina, 1 from diphtheria, 2 from enteric fever, and 3 from diarrhoea; and the 29 deaths in Cork comprise 1 each from scarlatina, whooping-cough, and diphtheria.

In the Dublin Registration District the births registered during the week amounted to 158—83 boys and 75 girls; and the deaths to 159—76 males and 83 females.

The deaths, which are 52 below the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 23·5 in every 1,000 of the estimated population. Omitting one death of a person admitted into a public institution from a locality outside the district, the rate was 23·3 per 1,000. During the first sixteen weeks of the current year the death-rate averaged 28·0, and was 5·5 below the mean rate in the corresponding period of the ten years 1879–88.

Deaths from zymotic diseases, which had risen from 13 in the week ended April 6 to 24 in the following week, fell again to 13 this week. This number is 13 (or 50 per cent.) below the average for the corresponding week of the last ten years. The 13 deaths from these causes comprise 2 from measles, 3 from whooping-cough, 2 from enteric fever, 1 from diarrhoea, &c.

Only nine cases of measles were admitted to hospital during the week, being a decline of 8 as compared with the admissions for the preceding week, and 20 under the number for the week ended April 6. Four measles patients were discharged during the week, 1 died, and 47 remained under treatment on Saturday, being 4 over the number in hospital at the close of the preceding week.

There has also been a decline in the number of enteric fever cases admitted to hospital, the number for this week being 9 against 13 for the preceding week, and 15 for the week ended April 6. Fifteen enteric fever patients were discharged, 1 died, and 46 remained under treatment on Saturday, being 7 under the number in hospital on Saturday, April 13.

The hospital admissions for last week include also 8 cases of scarlatina (against 5 for the preceding week) and 1 case of typhus: 30 cases of the former and 6 of the latter disease remained under treatment in hospital on Saturday.

Only 18 deaths from diseases of the respiratory system were registered, being 30 below the average for the corresponding week of the last ten years and 15 under the number for the week ended April 13. They comprise 14 from bronchitis and 2 from pneumonia or inflammation of the lungs.

METEOROLOGY.

*Abstract of Observations made in the City of Dublin, Lat. 53° 20' N.
Long. 6° 15' W., for the Month of April, 1889.*

Mean Height of Barometer,	-	-	-	29·748 inches
Maximal Height of Barometer (on 18th, at 9 a.m.),				30·153 "
Minimal Height of Barometer (on 4th, at 9 a.m.),				29·179 "
Mean Dry-bulb Temperature,	-	-	-	45·6°.
Mean Wet-bulb Temperature,	-	-	-	42·8°.
Mean Dew-point Temperature,	-	-	-	39·7°.
Mean Elastic Force (Tension) of Aqueous Vapour,	-			·245 inch.
Mean Humidity,	-	-	-	81·0 per cent.
Highest Temperature in Shade (on 20th),	-			59·7°.
Lowest Temperature in Shade (on 15th),	-			33·1°.
Lowest Temperature on Grass (Radiation) (on 15th),				26·0°
Mean Amount of Cloud,	-	-	-	72·5 per cent.
Rainfall (on 21 days),	-	-	-	2·607 inches.
Greatest Daily Rainfall (on 11th),	-	-	-	·420 inch.
General Directions of Wind,	-	-	-	N., N.E., N.W.

Remarks.

Like April, 1888, this was a generally cold, cloudy, changeable, showery month. It showed a low atmospherical pressure, and a preponderance of winds from polar points of the compass. In Dublin rain fell on as many as 21 days, and the total amount was more than $2\frac{1}{2}$ inches. With the exception of 1879, 1881, 1887, and 1888, this was the coldest April experienced in Dublin since the present records were commenced in 1860.

In Dublin the mean temperature (46·1°) was decidedly below the average (47·8°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 45·6°. In the twenty-four years ending with 1888 April was coldest in 1879

(the cold year) (M. T. = 44.5°) and warmest in 1865 and 1874 (M. T. = 50.4°). In 1886, the M. T. was 46.3° , in 1887 it was as low as 45.1° , and in 1888 it was only 45.7° .

The mean height of the barometer was 29.748 inches, or 0.109 inch below the average value for April—namely, 29.857 inches. The mercury rose to 30.153 inches at 9 a.m. of the 18th, and fell to 29.179 inches at 9 a.m. of the 4th. The observed range of atmospherical pressure was, therefore, only 0.974 inch—that is, a little less than one inch. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 45.6° , or only 2.3° above the value for March, 1889; that calculated by Kaemtz's formula—viz., $\text{min.} + (\text{maz.} - \text{min.} \times .41) = \text{Mean Temp.}$ —from the means of the daily maxima and minima was 45.2° , or 1.8° below the average mean temperature for April, calculated in the same way, in the twenty years, 1865–84, inclusive (47.0°). The arithmetical mean of the maximal and minimal readings was 46.1° , compared with a twenty-three years' (1865–1887, inclusive) average of 47.8° . On the 20th, the thermometer in the screen rose to 59.7° —wind W.; on the 15th the temperature fell to 33.1° —wind N.W. The minimum on the grass was 26.0° on the same date. The rainfall was 2.607 inches, distributed over 21 days. The average rainfall for April in the twenty-three years, 1865–87, inclusive, was 2.034 inches, and the average number of rainy days was 14.8. The rainfall, therefore, was considerably above the average, while the rainy days much exceeded it. In 1877 the rainfall in April was very large—4.707 inches on 21 days; in 1882 also 3.526 inches fell on 20 days. On the other hand, in 1873, only .498 of an inch was measured on 8 days, and in 1870 only .838 of an inch fell, also on 8 days.

No solar halos were seen. The atmosphere was more or less foggy on the 10th, 12th, and 18th. High winds were noted on 10 days, but on only two occasions was the force of a gale attained—namely, on the 28th and 30th. Snow or sleet occurred on the 4th, and hail fell on the 21st, 22nd, 23rd, and 24th. The temperature exceeded 50° in the screen on 19 days, compared with 16 days in March, 8 days in February, and the same number of days in January. It did not fall to 32° in the screen on even one night. The minima on the grass were 32° , or less, on 8 nights, compared with 14 nights in March, 21 in February and 16 nights in January. The mean lowest temperature on the grass was 34.4° , compared with 34.6° in 1888 and 31.6° in 1887. A peal of thunder was heard to the southward about 5 p.m. of the 30th.

Unsettled weather prevailed during the greater part of the period ending Saturday, the 6th. Temperature showed a marked decrease, and squally N.W. winds and cold showers were general. At the beginning of the period a depression was travelling southeastwards across the south of Scandinavia. Strong N.W. winds and showers of cold rain, sleet and

hail were reported from many stations on Monday, the 1st. In Scotland Tuesday was a very inclement day. The barometer now gave way quickly, and a deep depression advanced from the N.W. over Ireland and England. It caused heavy rains in the N. of Ireland, and all over the country the weather became broken, gloomy, cold, and showery, continuing so until the end of the week. In Dublin the mean height of the barometer was 29·721 inches—pressure ranging from 30·097 inches at 9 a.m. of Tuesday (wind N.N.W.) to 29·179 inches at 9 a.m. of Thursday (wind also N.N.W.) The mean dry bulb temperature at 9 a.m. and 9 p.m. was 45·4°. The arithmetical mean of the daily maxima and minima was almost the same—namely, 45·5°. The screened thermometers rose to 54·5° on Monday (wind, N.W.), and fell to 38·3° on Thursday (wind, N.N.W.). Rain was measured on three days, the total amount being ·276 inch, of which ·140 inch was registered on Thursday. Some sleet fell on this day. There were thunderstorms over the south of England on Friday, the 5th.

Many years have passed since so dull and wet and cold a period as that ended Saturday, the 13th, was experienced in April. A continuously low barometer for many days, chilly polar winds, densely overcast skies, frequent and abundant rainfalls, and an uniformly low temperature were the characteristics of this week. As usually happens when N.E. winds are prevalent, the weather was much worse on the east coast of Ireland than in the centre and western parts of this country. At 8 a.m. of Sunday, the 7th, the centre of a well-defined atmospherical depression was found off Ushant, so that easterly and north-easterly winds prevailed in the United Kingdom. In Dublin this day was very wet and cold. A short spell of sunshine on Monday morning was followed by a dull damp day. Tuesday was raw, gloomy, and damp; Wednesday showed a slight improvement; but Thursday was again cold and wet. On Friday the weather improved; and Saturday was dry, but cold. In Dublin the mean height of the barometer was only 29·589 inches—pressure ranging from 29·333 inches at 9 p.m. of Monday (wind, N.W.), to 29·921 inches at 9 p.m. of Saturday (wind, N.E.). The mean temperature, deduced from readings of the dry bulb thermometers taken daily at 9 a.m. and 9 p.m., was 42·7°. The arithmetical mean of the highest and lowest daily temperatures was 43·4°. The shade temperature was highest (50·6°) on Friday (wind, N.E.), and lowest (39·2°) on Monday (wind, E.). Rain fell on six days to the amount of 1·096 inches—the maximal fall in 24 hours being ·420 inch on Thursday. The atmosphere was foggy on Wednesday and Friday.

Favourable, dry weather prevailed during the third week (14th–20th inclusive). At first the air was dry and searching by day, frosty by night; but on Wednesday, the 17th, it became milder, and so continued to the end. From Sunday until Thursday an area of comparatively high

atmospherical pressure was found over the Atlantic to the westward of Ireland, where the winds were, accordingly, northerly (N.E. to N.W.), and the weather was fine and dry. In Dublin sharp ground frosts occurred on each of the first three nights—the grass minima being $29\cdot0^{\circ}$, $26\cdot0^{\circ}$, and $28\cdot3$, respectively. On Thursday the anticyclone (area of high pressure) moved southwards, and a warm southwesterly air current spread over Ireland and Scotland, causing higher temperatures and increasing cloud. On Friday night rain fell heavily in the N.W. of Ireland, but only a shower or two passed over Dublin. In this city the mean height of the barometer was $30\cdot044$ inches, pressure ranging between $30\cdot153$ inches at 9 a.m. of Thursday (wind, S.S.W.) and $29\cdot731$ inches at 9 p.m. of Saturday (wind, W.S.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was $47\cdot9^{\circ}$, or $5\cdot2^{\circ}$ above the corresponding value for the previous week. The arithmetical mean of the highest and lowest daily temperatures was $47\cdot8^{\circ}$. The thermometer rose nearly to 60° in the shade (screen) on Wednesday, Thursday, and Saturday—the actual values being $59\cdot6^{\circ}$, $59\cdot5^{\circ}$, and $59\cdot7^{\circ}$ respectively. On Monday the minimum in the shade was $33\cdot1^{\circ}$, while that on the grass was as low as $26\cdot0^{\circ}$. Rain fell on the night of Good-Friday, the 19th, to the amount of only $\cdot010$ inch, and on Saturday night to the amount of $\cdot120$ inch—total rainfall for the week = $\cdot180$ inch, on two days.

Conditions were cyclonic over Northwestern Europe throughout the fourth week (21st—27th inclusive), and consequently the weather was unsettled, squally, and showery, with some finer intervals. Temperature ruled decidedly low for the time of year, and in Dublin hail fell on Sunday and the three following days. On Easter Day, April 21, the centre of an extensive atmospherical depression lay off the extreme N.W. of Scotland—the barometer at 8 a.m. ranged from $30\cdot22$ inches in the S.E. of France to $29\cdot17$ inches at Stornoway (Hebrides). Showers of rain and hail and squalls prevailed. On Tuesday another depression travelled southeastwards down the North Channel and across the Irish Sea to the centre and east of England. Heavy showers fell in all districts, and thunder and lightning with hail occurred at many places in England. On Friday a new V.-shaped depression caused a heavy rainfall in Dublin. Towards the close of the week a tendency for southerly to take the place of northerly winds was perceptible. In Dublin the mean height of the barometer was $29\cdot751$ inches—pressure ranging from $29\cdot384$ inches at 7 p.m. of Tuesday (wind, W.), to $30\cdot016$ inches at 9 p.m. of Thursday (wind, S.E.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was $46\cdot0^{\circ}$. The mean temperature derived from the highest and lowest daily readings was $46\cdot5^{\circ}$. The screened thermometers rose to $54\cdot7^{\circ}$ on Tuesday (wind, W.), and fell to $39\cdot1^{\circ}$ on Monday (wind, N.N.W.). Rain fell on seven days to the total amount of $\cdot832$ inch. The maximal rainfall in 24 hours was $\cdot376$ inch on Friday (wind, S. to W.N.W.).

On Sunday, the 28th, a S.E. gale blew for some hours in Dublin, while great cold prevailed inland, and sleet and snow fell. Heavy showers fell on the 29th, and on the 30th there was another short-lived southeasterly to easterly gale. At 5 p.m. distant thunder was heard near Dublin, and great gloom occurred for a time.

The rainfall in Dublin during the four months ending April 30th has amounted to 8·345 inches on 74 days, compared with 8·090 inches on 58 days during the same period in 1888, 5·607 inches on 52 days during the same period in 1887, and a 23 years' average of 8·488 inches, on 66·2 days.

At Greystones, Co. Wicklow, the rainfall in April, 1889, was 2·01 inches, distributed over only 12 days. Of this quantity ·48 inch fell on the 11th, and ·41 inch on the 5th. Since January 1st, 9·98 inches of rain have fallen at Greystones, on, however, only 41 days.

PERISCOPE.

EXCISION OF THE ANGLES OF THE INFERIOR MAXILLA.

At the meeting of the Clinical Society of London on the 26th of April, 1889, Mr. W. H. Bennett reported a case of excision of the angles of the lower jaw in a case of bilateral ankylosis. A considerable amount of movement, both vertically and laterally, followed the operation.

PERSISTENT PUPILLARY MEMBRANE.

DR. SYDNEY STEPHENSON, in examining 725 children, found traces of the pupillary membrane in fifteen cases. Out of these fifteen cases, thirteen had one and two had both eyes affected.—*The Illustrated Medical News*, No. 3.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

The "Elect Cocoa."

Messrs. ROUNTREE & COMPANY, of York, and Cowper's Court, Cornhill, London, E.C., recently sent us a sample of an extract of cocoa prepared by their firm, to which they have given the name, "Elect Cocoa." We have used this preparation for some time, and are of opinion that its superiority is undoubted. It is very palatable, and of pleasant flavour, free from bitterness and excess of fatty matter, and is, therefore, eagerly taken by children. It blends easily with hot water, and may be so taken without milk, if preferred. The many good qualities possessed by the "Elect Cocoa" fully justify its claim to the name it bears; while its moderate price will still further ensure its popularity.

In Memoriam.

ROBERT M'DONNELL, M.D. UNIV. DUBL. ;

F.R.C.S.I. ; F.R.S. ; M.R.I.A. ;

Ex-President of the Royal Academy of Medicine in Ireland.

By a melancholy coincidence the honoured name of ROBERT M'DONNELL stands at the head of the first and of the last page of this, the eighty-seventh, volume of the *Dublin Journal of Medical Science*. The volume opened with a classical paper from his pen on "Pulsating Tumour of Bone"—it closes, alas ! with this brief tribute to his memory.

Early on the morning of Monday, May 6, death came to him with tragic suddenness ; and, by those who had seen him a few hours before apparently in the full vigour of health and strength, the sad news was at first received with incredulity or doubt.

The story of his life has already been told in the pages of the weekly medical journals. It remains for us only to give expression to our sense of the irreparable loss which has befallen the profession of medicine in this country, and medical science in general, through the removal of ROBERT M'DONNELL. With pardonable pride we recall the fact that several of his most valuable contributions to scientific medical literature appeared in the pages of this Journal—for example, his monograph on the "Physiology of Diabetic Sugar in the Animal Economy," his "Observations on the Operation of Trephining the Spine in Cases of Fracture," and the paper on "Pulsating Tumour of Bone," to which we have already referred.

A man of strong individuality, of many and varied attainments, a skilful surgeon, a scientist of no mean parts, a graceful speaker—such was ROBERT M'DONNELL. The wide-spread feeling of personal loss in his death found expression in the vast gathering which assembled on the morning of the funeral to pay the last tribute of friendship and respect to his memory. It was a touching scene, and bore eloquent testimony to his worth and fame.

J. W. M.

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